DEPARTMENT OF
ECOLOGY
State of Washington

Response to Comments

Class 3 Permit Modification Updates to Permit for Waste Management at the 325 Hazardous Waste Treatment Units (HWTUs)

August 18 – October 17, 2014

Summary of a public comment period and responses to comments

February 2015
Publication no. 15-05-002

PUBLICATION AND CONTACT INFORMATION

This publication is available on the Department of Ecology's (Ecology) website at https://fortress.wa.gov/ecy/publications/SummaryPages/1505002.html

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Email: Hanford@ecy.wa.gov

Washington State Department of Ecology - www.ecy.wa.gov

- Headquarters, Lacey 360-407-6000
- Northwest Regional Office, Bellevue 425-649-7000
- Southwest Regional Office, Lacey 360-407-6300
- Central Regional Office, Yakima 509-575-2490
- Eastern Regional Office, Spokane 509-329-3400

Ecology publishes this document to meet the requirements of Washington Administrative Code 173-303-840 (9).

If you need this document in a format for the visually impaired, call the Nuclear Waste Program at 509-372-7950. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

Response to Comments

Class 3 Permit Modification to Permit for Waste Management at the 325 Hazardous Waste Treatment Units (HWTUs)

August 18 – October 17, 2014

Department of Ecology
Nuclear Waste Program
3100 Port of Benton Boulevard
Richland, Washington 99354

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INTRODUCTION

The Washington State Department of Ecology's Nuclear Waste Program (NWP) manages dangerous waste within the state by writing permits to regulate its treatment, storage, and disposal. When a new permit or a significant modification to an existing permit is proposed, dangerous waste regulations require public comment periods to allow the public to review the changes and provide formal feedback. (See Washington Administrative Code [WAC] 173-303-830 for types of permit changes.)

This Response to Comment document has been written to respond to the public comments that were submitted during the initial 60-day public comment period for this Class 3 permit modification.

This Response to Comments is prepared for:

Comment period:	Class 3 Permit Modification Updates to Permit for Waste Management at the 325 Hazardous Waste Treatment Units (325 HWTUs), August 18 – October 17, 2014
Permit:	*Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit for the Treatment, Storage, and Disposal of Dangerous Waste,* (WA 7980008967)
Permittees:	United States Department of Energy-Richland Operations Office Pacific Northwest National Laboratory
Original issuance date:	February 28, 1998

To see more information related to the Hanford Site and nuclear waste in Washington, please visit our website: www.ecy.wa.gov/programs/nwp.

REASON FOR PROPOSING CHANGES TO THE PERMIT

The U.S. Department of Energy, Richland Operations Office (DOE-RL) proposed a Class 3 permit modification to add three new discrete areas of the Radiochemical Processing Laboratory where permitted storage and treatment of waste may occur.

The new areas with additional capacity are:

1. Cask-handling area
2. Truck lock
3. 3714 Pad (for storage)

The permittees are requesting the addition of the three areas to enable the treatment of waste. The currently permitted areas are not large enough to properly process the existing waste streams.

PUBLIC INVOLVEMENT ACTIONS

NWP and the permittees encouraged public comment on this Class 3 permit modification during the first public comment period, from August 18 through October 17, 2014.

Under WAC 173-303-830(4)(c), the permittee is responsible to hold a comment period and a public meeting for Class 3 permit changes. To meet the requirements, the permittee:

- Emailed advance notice of the comment period to the Hanford-Info email list (the email portion of the Hanford Facility mail list), which had 1,454 subscribers at the time.
- Featured the comment period on its website.
- Mailed a notice announcing the comment period to the 1,953 interested members of the public on the Hanford facility postal mail list.
- Announced the comment period on the online Hanford Events calendar.
- Sent a notice announcing the start of the comment period to the Hanford-Info email list.
- Placed an advertisement in the *Tri-City Herald* on August 18, 2014.
- Held a public meeting on September 4, 2014, at the Pacific Northwest National Laboratory's Environmental Technology Building in Richland, Washington. No members of the public attended, and no comments resulted from the meeting.

NWP hosted the comment period announcements and review materials on our website and posted a notice about the comment period on the @ECYHanford Twitter account.

The following documents were available for public review at the Hanford information repositories located in Richland, Spokane, and Seattle, Washington, and Portland, Oregon:

- Comment period summary
- Transmittal letter
- Draft 325 HWTUs Permit Modification:
  - Addendum B – Waste Acceptance Plan
  - Addendum C – Process Information
  - Addendum E – Procedures to Prevent Hazards
  - Addendum F – Preparedness and Prevention
  - Addendum G – Personnel Training
  - Addendum H – Closure Plan
  - Addendum I – Inspection Requirements
  - Conditions
  - Temporary Authorization Request
  - Supplemental Information

The following public notices for this comment period are in Appendix A of this document:

1. Comment period advance notice email to Hanford-Info list.
2. The comment period summary ("Fact Sheet").
3. Comment period start announcement sent to Hanford-Info email list.
4. Classified advertisement in the *Tri-City Herald*.
5. Tweets to Ecology's Twitter account for the public meeting and for the comment period(s) underway.
6. Permit modification transmittal letter.

LIST OF COMMENTERS

Commenter Identification:

The table below lists the names of organizations and individuals who submitted a comment on the 325 HWTUs permit modification and where you can find Ecology's response to the comments.

Commenter	Organization	Page Number
Leah Boehm Brady	Citizen	4-5
Mike Conlan	Citizen	5

RESPONSE TO COMMENTS

Ecology accepted comments on the permit modification for the 325 HWTUs from August 18 through October 17, 2014. This section shows the comments we received during the public comment period and our responses, as required by RCW 34.05.325(6)(a)(iii).

Comments are grouped by individual and each comment is addressed separately. The NWP's responses directly follow each comment in italic font. A verbatim copy of the written comments is attached in Appendix B.

Description of Comments:

For all Hanford-related comment periods, Ecology directs email comments to a single address, Hanford@ecy.wa.gov. During the 325 HWTUs comment period, another comment period for Hanford opened. It is not clear if the comments we received are directed toward the 325 HWTUs permit modification or to another public comment period. We chose to include all comments in this document, as well as in our response to the other comment period.

Comment # 1 from Leah Boehm Brady:
"I do not think any waste should be put in the storage areas until all cracks in the liner have been fully repaired. I think it is very unwise to do otherwise."

Ecology Response:
Thank you for your comment. We believe this comment refers to the liner at the Liquid Effluent Retention Facility, not the 325 HWTUs covered by this permit modification. However, Ecology agrees that the LERF basins should not receive more waste until the liner is repaired.

Comment #2 from Leah Boehm Brady:
"I also oppose making new storage areas and letting new waste come into Hanford."

Ecology Response:
Thank you for your comment. The proposed permit changes are not for new waste or new storage areas, but to use existing areas to better manage the waste already at Hanford. Ecology and DOE have agreed that DOE will not import waste to the Hanford Site (except for a few specified exceptions) until at least the Waste Treatment Plant is operational.

Comment #3 from Leah Boehm Brady:
"All polluted areas must be cleaned up prior to importing new waste."

Ecology Response:
Thank you for your comment. The permit changes are not for new waste, but to better manage wastes already at Hanford. Ecology and DOE have agreed that DOE will not import offsite waste to the Hanford Site (except for a few specified exceptions) until at least the Waste Treatment Plant is operational.

The increased capacity for the 325 Hazardous Waste Treatment Units will allow the safe handling of a very dangerous paint can-sized container. The plan is to grout it in a very large box. The new permitted areas give workers space for grouting the boxes and handling them with a forklift, and a place to store the large and heavy waste boxes before they can be disposed of.

Comment #4 from Mike Conlan:
"Remove all nuclear waste from Hanford."

Ecology Response:
Thank you for your comment. Ecology is working to ensure that long-term storage, treatment, and disposal of the waste is protective of human health and the environment.

Comment #5 from Mike Conlan:
"Replace all single-shell tanks w/quality multi skinned tanks."

Ecology Response:
Thank you for your comment, but single-shell tanks are not in the scope of this comment period.

We agree the tanks pose a threat. We believe a better approach to addressing it is to remove the waste from the single-shell tanks and put it in the compliant double-shell tanks to prepare for eventual treatment in the Waste Treatment Plant now being built.

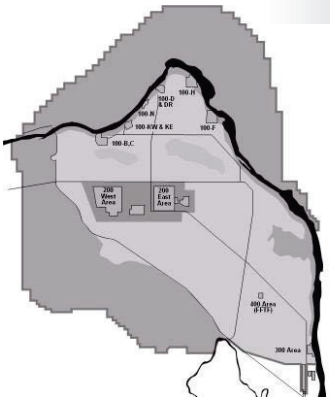
Comment #6 from Mike Conlan:
"Do not allow any more nuclear waste on to facility."

Ecology Response:
Thank you for your comment. The proposed permit changes are not to allow new waste, but to better manage the waste already at Hanford.

APPENDIX A: COPIES OF ALL PUBLIC NOTICES

Public notices for this comment period:

1. Comment period summary (Fact Sheet)
2. Classified advertisement in the *Tri-City Herald*
3. Notices sent to the Hanford-Info email list
4. Notice sent to Ecology's @ecyHanford Twitter account about open comment periods
5. Permit modification transmittal letter



Public Comment Period on Updates to Permit for Waste Management at the 325 Hazardous Waste Treatment Units (HWTUs)

September 2014 U.S. Department of Energy

The U.S. Department of Energy Richland Operations Office (DOE-RL) is holding a 60-day comment period on proposed Class 3 modifications to the Hanford Facility Dangerous Waste Permit. The proposed changes add waste treatment and storage capacity at the 325 Hazardous Waste Treatment Units (HWTUs).

BACKGROUND

The Department of Energy, Richland Operations Office (DOE-RL) and Pacific Northwest National Laboratory (PNNL) have filed a temporary authorization request with the Washington State Department of Ecology. DOE-RL and PNNL seek to treat and store a limited amount of waste in new units being added to the 325 Hazardous Waste Treatment Units (HWTUs) located in the 300 Area of the Hanford Site.

The proposed Class 3 modifications add three new discrete portions of the Radiochemical Processing Laboratory (RPL or 325 Building) as areas where permitted storage and treatment of waste may occur. The modification revises the unit-specific conditions and each Addendum (except for the contingency plan) for the 325 HWTUs. Along with the addition of the units, other conforming changes are also being made. A temporary authorization request was also submitted in order to treat and store wastes while the permit modification process proceeds.

Class 3 Permit Modifications: Updates to the Hanford Facility Dangerous Waste Permit, such as substantial alteration of the facility or its operation. All Class 3 modifications require approval from the Washington State Department of Ecology.

The modification includes:

Addition of Units:

The Permittees, DOE-RL and Pacific Northwest National Laboratory (PNNL), are adding three units to the permitted 325 HWTUs. These new units are needed to enable the treatment of waste by placing waste containers in large boxes and filling them with cement. This treatment is sometimes required by Hanford's waste acceptance criteria for burial and/or the Washington Dangerous Waste Regulations.

The units being added are:

Cask Handling Area:

A portion of Room 603 and 604A in RPL. This area has a heavier floor loading limit and a large capacity bridge

PUBLIC COMMENT

DOE-RL wants your feedback on these proposed modifications. The public comment period will run from **August 18 through October 17, 2014.** A public meeting will be held on September 4, 2014 at 6:30 p.m., at the PNNL Environmental Technology Building, 3200 Innovation Boulevard, Richland, WA 99354.

Public Comment Period on Updates to Permit for Waste Management at the 325 Hazardous Waste Treatment Units (HWTUs) continued

325 Building and vicinity

crane. This unit would be used to load heavy waste containers in larger containers or boxes and temporarily store these larger containers.

Truck Lock:

Room 610 in RPL, adjacent to Room 603. This area is built on grade with heavy concrete and has a large roll-up door and truck ramp. The Truck Lock would be used when heavy containers or boxes are being filled with grout and for storage of those containers. It can also be used to pre-stage shipments of waste containers to Hanford pending pickup.

3714 Pad:

This is the concrete foundation pad for the former 3714 Building northeast of RPL; 3714 was demolished in 2000. This pad and adjacent soil area will be used to stage waste boxes and containers for shipment. Staging/storage in this area allows the waste to be out of Laboratory operational areas while awaiting shipment and also facilitates easy inspection.

Because placement of containerized waste in boxes increases the volume of the waste to the size of the box, the stated capacity of the 325 HWTUs is being significantly increased. This increase is intended to facilitate the operations in the units being added. The Permittees are not expanding the scope of 325 HWTUs operations, which is focused on waste management for PNNL research activities.

Highlights of Other Changes:

The 325 HWTUs permit addenda are being revised to add enforceable details in a few areas:

Security and Preparedness and Prevention Addenda:

References to outdated documents were replaced with current, unit-specific text.

Public Comment Period on Updates to Permit for Waste Management at the 325 Hazardous Waste Treatment Units (HWTUs) continued

Training Addendum:

Retraining frequencies are added for each class of coursework required. This was maintained in the training plan, but is now in the permit.

Closure Plan Addendum:

Clarifies that all 325 HWTUs container storage areas utilize a similar approach when closing, whether the rest of the 325 HWTUs is closing or not. This is called "partial closure". The hot cells and tank are now linked for closure due to engineering changes that make clean closure of either the hot cells or the tank dependent on the other.

The DOE-RL contact for this permit change is Kristen Skopeck, (509) 376-5803. The Washington State Department of Ecology contact is Stacy Nichols, (800) 321-2008.

The permittees' compliance history during the life of the permit being modified is available from the Ecology contact.

Copies of the proposed permit modification and supporting documentation are available at the Administrative Record, 2440 Stevens Drive, Richland.

How you can become involved

A 60-day public comment period on proposed Class 3 modifications to Part III of Hanford's Dangerous Waste Permit will run from **August 18 through October 17, 2014**. A public meeting will be held **September 4, 2014** from 6:30 p.m. at the PNNL Environmental Technology Building, 3200 Innovation Boulevard, Richland, WA 99354.
Comments should be submitted by October 17, 2014 to:

Stacy Nichols
Washington Department of Ecology
3100 Port of Benton Boulevard
Richland, WA 99354
Email: Hanford@ecy.wa.gov

The documents are available for review at the Public Information Repositories listed below.

Portland State University Government Information Branford Price Millar Library 1875 SW Park Avenue Portland, OR 97207-1151 Attn: Claudia Weston (503) 725-4542 Map:http://www.pdx.edu/map.html	University of Washington Suzzallo Library Government Publications Dept. Box 352900 Seattle, WA 98195-2900 Attn: Hilary Reinert (206) 543-5597 Map: http://tinyurl.com/m8ebj	US. Department of Energy Public Reading Room Washington State University, Tri Cities Consolidated Information Ctr., Rm. 101-L 2770 University Drive Richland, WA 99352 Attn: Janice Parthree (509) 372-7443 Map:http://www.tricity.wsu.edu/campusmaps/campusmap.pdf	Gonzaga University Foley Center Library East 502 Boone Avenue Spokane, WA Attn: John Spencer (509) 313-6110 Map:http://tinyurl.com/2c6bpm

Administrative Record and Public Information Repository:
Address: 2440 Stevens Center Place, Room 1101, Richland, WA.
Phone: 509-376-2530 **Web site address**: www2.hanford.gov/arpir/

Help Wanted 530

Are you passionate (509)547-8800

Drivers 537

DRIVERS resume to: jamie.cimmiyotti@riverpointfarms.com

Financial/ Accounting 542

AR-Bookkeeper Broetje Orchards www.spectrumhealthsystems.org

Medical/Dental 555

Medical Biller/Coder Tri-City Orthopaedic 628 N. Arthur St, in Kennewick. Questions? Call (509)735-0699

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Classified Legals

CCR-Tri Cities IV, LLC
Local Public Notice

On August 6, 2014, CCR-Tri Cities IV, LLC filed an application with the Federal Communications Commission, Washington, D.C., for consent to transfer control of the licenses of AM station KONA, Kennewick-Richland-Pasco, WA, 610 kHz, and FM stations KONA-FM, Kennewick, WA, 105.3 MHz and KZHR, Dayton, WA, 92.5 MHz from Joseph Schwartz and Kirk Warshaw to Cherry Creek Broadcasting Company.

Transferors Joseph Schwartz and Kirk Warshaw are individual U.S. citizens and the sole voting members of Cherry Creek Radio LLC, the indirect parent of the licensee. Transferee Cherry Creek Broadcasting Company is a Delaware limited liability corporation. The entities and individuals holding attributable interests in the transferee, Cherry Creek Broadcasting Company, are CCBC Holdco II, LLC; Larimer Holdco II, LLC; Sankaty Credit Opportunities V AIV I, L.P.; Sankaty Credit Opportunities Investors V-A, L.P.; Sankaty Credit Member, LLC; Joseph Schwartz; Kirk Warshaw; Brian Hirschfeld; James Athanasoulas; Brian McNeill; Ranesh Ramanathan; Jonathan S. Lavine; Jeffrey Hawkins; Tim Barns; Michael Bevacqua; Andrew Carlino; Robert Cunjak; Stuart Davies; Jonathan DeSimone; Mike Ewald; Kimberly Harris; Viva Hyatt; James Kellogg; Susan Lynch; David McCarthy; Laki Nomicos; Jeffrey Robinson; and Robert Weiss. A copy of the application is on file for public inspection during regular business hours at 2823 West. Lewis Street, Pasco, WA.
#14-7503 8/18 & 8/25/2014

ADVERTISEMENT FOR BID
Port of Morrow
Design Build
Freezer Warehouse

Request for Bids
Bids due 1:30 p.m.
September 18th, 2014

Bids submitted for Supply of Labor & Materials, must be submitted in a sealed envelope to the Port of Morrow, P.O. Box 200 (No. 2 Marine Drive), Boardman, Oregon 97818 not later than 1:30 p.m., local time, on the **18th** day of **September 2014**. At that time they will be publicly opened. Bids will not be accepted after this hour and date.

The Project:
Freezer Warehouse
General description of the project includes Design, Labor, and Materials for Construction of the following:

The Scope of Work shall include the design and construction of a new 137,500 SF Freezer building for the storing and distribution of frozen product to locations throughout the World. There is approximately 110,000 SF of freezer. The balance of the space will be loading dock and ancillary spaces. The basis of the design shall be for a maximum deck height to allow for storage racking for four pallet high, 100" high opening seven deep, 3,500-4,000 pound rated, racking.

The Port of Morrow reserves the right to reject for good cause, any or all bids, or to postpone the award of the contract upon finding that it is in the public interest to do so. Each bid must contain a statement as to whether the bidder is a resident bidder, as defined in ORS 279a.120. **The bidder is subject to all requirements regarding the payment of Prevailing Wage Rates per Public Works Project ORS 279c.800 to 279C.850.**

A copy of the scope of work may be obtained on **August 19th, 2014** from Carmen Mendoza at carmen@portofmorrow.com or at the Port of Morrow office, No. 2 Marine Drive, Boardman, Oregon, phone 541/481-7678.
#14-7526 8/18/2014

BENTON COUNTY
REQUEST FOR
LETTERS OF INTENT

Benton County is inviting letters of interest for vendors to be placed on a general vendor's list pursuant to RCW 39.04.190. Benton County may use this list for certain purchases or leases of materials, supplies, and equipment of less than $25,000. General vendors are encouraged to log onto our website at www.co.benton.wa.us under commissioners, click on small works/vendors list and complete the form. Interested parties will be placed on Benton County's vendor list and may request to be removed from the roster at any time. The list may be used by the County for selecting vendors, when and if a need arises. Additional information may be obtained by calling (509) 786-5600 from Prosser or (509) 736-3080 from the Tri-Cities.
BY: Marilu Flores,
Executive Assistant
#14-7517 8/18/2014

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON IN AND FOR THE COUNTY OF BENTON

In the Matter of the Estate of:

ELLEN M. PULSIPHER
AKA FLORA ELLEN PULSIPHER

Deceased.

No. 14-4-00335-2
PROBATE NOTICE TO CREDITORS
RCW 11.40.030

The personal representative named below has been appointed as personal representative of this estate. Any person having a claim against either deceased must, before teh time the claim would be barred by any otherwise applicable statute of limitations, present the claim in the manner as provided by RCW 11.40.070 by serving or mailing to the personal representative or the personal representative's attorney at the address stated below a copy of the claim and filing the original of the claim withthe court in which the probate proceedings were commenced. The claim must be presented within hte later of: (1) Thirty days after the personal representative served or mailed the notice to the creditor as provided under RCW 11.40.020(1) (c) ; or (2) four months after the date of the first publication of the notice. If the claim is not presented within this time frame, the claim is forever barred, exept as otherwise provided in RCW 11.40.051 and 11.40.060. This bar is effective as to claims against hte deceased party's probate and nonprobate assets.

DATE OF FIRST PUBLICATION:
August 18, 2014

BRENT A. PULSIPHER
Personal Representative

Address for Mailing or Service:
Jan R. Armstrong
Armstrong, Klym, Waite, Atwood & Jameson, P.S.
660 Swift Boulevard, Suite A
Richland WA 99352

Court of Probate Proceedings and case number:
Benton Country Superior Court
7122 West Okanogan Place Building A
Kennewick, WA 99336
Case No: 14-4-00335-2
#14-7500 8/18 & 8/25 & 9/1/2014

NOTICE

Public Comment Requested on the 325 Hazardous Waste Treatment Units Operating Permit

Public comments are invited on a proposed modification to the Hanford 325 Hazardous Waste Treatment Units Dangerous Waste Permit. The modification request includes a request for temporary authorization to allow some activities while the modification is being reviewed. The permittees are the United States Department of Energy (DOE), P.O. Box 550, Richland, Washington 99352, and Pacific Northwest National Laboratory (PNNL), P.O. Box 999, Richland, Washington, 99352.

The comment period will run from August 18 through October 17, 2014. A Public Meeting is planned to be held on September 4, 2014 at 6:30 PM at the PNNL Environmental Technology Building, 3200 Innovation Boulevard, Richland. During the comment period, the draft permit modification is available for public review at the Administrative Record, 2440 Stevens Drive, Richland.

The permittee's compliance history during the life of the permit being modified is available from the Department of Ecology contact person. Comments should be sent to Ecology's permit writer, Stacy Nichols, 3100 Port of Benton Boulevard, Richland, WA 99354 or at Hanford@ecy.wa.gov.

For more information contact Kristen Skopeck of RL, (509) 376-5803, or Stacy Nichols of Ecology, 800-321-2008.
#14-7508 8/18/2014

To Place Your Legal Announcement, Call 582-1560

(3-line maximum)

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8 foot metal step ladder, $1850. 946-0486

Cactus, outdoor blooming cactus, in pots. $20/4. 572-5253

Concrete Fountain 4 piece, pump $50.00 366-4467

Oak table $100, excellent condition. 628-0115

Cricut Imagine $125 946-4027

Recliner and Rocker $50.00 592-9357

Bed Frame Metal adjustable $25.00 592-9357

Chest Freezer J.C. Penny, 20 cubic feet $190.00 375-3294

Equalizer Hitch Heavy Duty, receiver & Bars $100 366-4467

Singer 401A sewing machine in cabinet w/manual $125. 543-9318

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3. Price must be listed in ad.
4. One item per ad.
5. No pets or yard sales.
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7. No abbreviations, please.
8. Ad runs three consecutive days
9. Maximum of 12 words or three lines.
10. Phone number must be in ad and must match number on form.
11. Limit two free ads per household per week.

Mail this form to:
The Tri-City Herald – Bargains
333 W. Canal Drive
Kennewick, WA 99336

Fax to:
509-582-1401

E-mail to:
classads@tricityherald.com

Drop box:
333 W. Canal Drive, Kennewick

From: Ballinger, Kimberly S <kimberly.ballinger@RL.DOE.GOV>
Sent: Wednesday, July 16, 2014 1:25 PM
To: HANFORD-INFO@LISTSERV.WA.GOV
Subject: Notice

NOTICE

The Department of Energy, Richland Operations Office (DOE-RL) and Pacific Northwest National Laboratory (PNNL) have filed a temporary authorization request with the Washington State Department of Ecology. DOE-RL and PNNL seek to treat and store a limited amount of waste in new units being added to the 325 Hazardous Waste Treatment Units (HWTUs) located in the 300 Area of the Hanford Site.

DOE-RL and PNNL are also planning a public comment period to begin on August 18, 2014. This comment period will coincide with submittal of a Class 3 permit modification to formally add new units and treatment/storage capacity at the 325 HWTUs. A public meeting will also be held. Formal notice of the comment period and the date and location of the public meeting will be announced on or about August 18.

Kim Ballinger
U.S. Department of Energy
Communications Specialist
Phone: (509)376-6332
Cell: (509)438-0307

From: ^TPA <TPA@RL.GOV>
Sent: Monday, August 18, 2014 8:45 AM
To: HANFORD-INFO@LISTSERV.WA.GOV
Subject: Public Comment Period - Proposed modification to the Hanford 325 Hazardous Waste Treatment Units Dangerous Waste Permit

This is a message from the U.S. Department of Energy

Public Comment Requested on the 325 Hazardous Waste Treatment Units Operating Permit

Public comments are invited on a proposed modification to the Hanford 325 Hazardous Waste Treatment Units Dangerous Waste Permit. The modification request includes a request for temporary authorization to allow some activities while the modification is being reviewed. The permittees are the United States Department of Energy (DOE), P.O. Box 550, Richland, Washington 99352, and Pacific Northwest National Laboratory (PNNL), P.O. Box 999, Richland, Washington, 99352.

The comment period will run from Aug. 18 through Oct. 17, 2014. A Public Meeting will be held Sept. 4 at 6:30 p.m. at the PNNL Environmental Technology Building, 3200 Innovation Boulevard, Richland. During the comment period, the draft permit modification is available for public review at Washington Department of Ecology, 3100 Port of Benton Boulevard, or within seven days of the start of the comment period at the Administrative Record, 2440 Stevens Drive, Richland.

Background -- The proposed Class 3 modifications add three new discrete portions of the Radiochemical Processing Laboratory (RPL or 325 Building) as areas where permitted storage and treatment of waste may occur. The modification revises the unit-specific conditions and each Addendum (except for the contingency plan) for the 325 HWTUs. Along with the addition of the units, other conforming changes are also being made. A temporary authorization request was also submitted in order to treat and store wastes while the permit modification process proceeds. The modification includes: **Addition of Units**: The Permittees, DOE-RL and Pacific Northwest National Laboratory (PNNL), are adding three units to the permitted 325 HWTUs. These new units are needed to enable the treatment of waste by placing waste containers in large boxes and filling them with cement. This treatment is sometimes required by Hanford's waste acceptance criteria for burial and/or the Washington Dangerous Waste Regulations.

The units being added are:

Cask Handling Area: A portion of Room 603 and 604A in RPL. This area has a heavier floor loading limit and a large capacity bridge crane. This unit would be used to load heavy waste containers in larger containers or boxes and temporarily store these larger containers.

Truck Lock: Room 610 in RPL, adjacent to Room 603. This area is built on grade with heavy concrete and has a large roll-up door and truck ramp. The Truck Lock would be used when heavy containers or boxes are being filled with grout and for storage of those containers. It can also be used to pre-stage shipments of waste containers to Hanford pending pickup.

3714 Pad: This is the concrete foundation pad for the former 3714 Building northeast of RPL; 3714 was demolished in 2000. This pad and adjacent soil area will be used to stage waste boxes and containers for

shipment. Staging/storage in this area allows the waste to be out of Laboratory operational areas while awaiting shipment and also facilitates easy inspection.

Because placement of containerized waste in boxes increases the volume of the waste to the size of the box, the stated capacity of the 325 HWTUs is being significantly increased. This increase is intended to facilitate the operations in the units being added. The Permittees are not expanding the scope of 325 HWTUs operations, which is focused on waste management for PNNL research activities.

Highlights of Other Changes:

The 325 HWTUs permit addenda are being revised to add enforceable details in a few areas:
Security and Preparedness and Prevention Addenda: References to outdated documents were replaced with current, unit-specific text.
Training Addendum: Retraining frequencies are added for each class of coursework required. This was maintained in the training plan, but is now in the permit.
Closure Plan Addendum: Clarifies that all 325 HWTUs container storage areas utilize a similar approach when closing, whether the rest of the 325 HWTUs is closing or not. This is called "partial closure". The hot cells and tank are now linked for closure due to engineering changes that make clean closure of either the hot cells or the tank dependent on the other.

The permittee's compliance history during the life of the permit being modified is available from the Department of Ecology contact person. Comments should be sent to Ecology's permit writer, Stacy Nichols, 3100 Port of Benton Boulevard, Richland, WA 99354 or at Hanford@ecy.wa.gov.

For more information, please contact Kris Skopeck, DOE-RL, (509) 376-5803, or Stacy Nichols, Washington Department of Ecology, 800-321-2008.

HTWU SOCIAL MEDIA

Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

14-ESQ-0096

JUL 09 2014

Ms. J. A. Hedges, Program Manager
Nuclear Waste Program
State of Washington
Department of Ecology
3100 Port of Benton Boulevard
Richland, Washington 99354

Dear Ms. Hedges:

CLASS 3 MODIFICATION AND TEMPORARY AUTHORIZATION REQUEST FOR THE 325 HAZARDOUS WASTE TREATMENT UNITS (HWTUs) PORTION OF THE HANFORD FACILITY RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) PERMIT

Attached to this letter is a Class 3 (major) permit modification package and a temporary authorization request for addition of three new units (the Cask Handling Area, the Truck Lock, and the 3714 Pad) to the 325 HWTUs Operating Unit Group (OUG) of the Hanford Facility RCRA Permit. This OUG is owned and operated by the U.S. Department of Energy Richland Operations Office (RL) and co-operated by Pacific Northwest National Laboratory (PNNL).

The permit modification is being requested in order to process waste that must be stabilized or otherwise managed in larger containers (e.g., boxes) prior to disposal. The temporary authorization is being requested chiefly to allow RL and PNNL to stabilize, and prepare for disposal, two containers of mixed waste containing barium in excess of land disposal restrictions (LDR) standards. Ecology has previously approved a site-specific LDR variance for this material, but the macroencapsulation container specified in the variance cannot be disposed at the Hanford burial grounds (also as specified in the variance) without placing the macroencapsulated container in a box and filling it with grout to meet anti-subsidence requirements. The LDR variance states that the waste will be treated at the 325 HWTUs prior to disposal. RL and PNNL wishes to process this waste during the current fiscal year rather than continue to store the waste.

The modification package contains the following information:

- Revisions to the unit-specific permit conditions for the 325 HWTUs (Hanford Facility RCRA Permit Part III, OUG 5)
- Revisions to Addenda A, B, C, E, F, G, H, and I of Part 3, OUG 5. (Revision of Addendum J is not needed.)

- Supplemental information not part of Part III, OUG 5 but required to be included in a major modification request by Washington Administrative Code (WAC) 173-303-830(4)(c)(i)(D). This includes certification statements from RL and PNNL.
- The temporary authorization request containing the information required by WAC 173-303-830(4)(e)(ii)(B).

A redline/strikeout version of the revisions to the unit-specific conditions and the Addenda being revised is available and will be transmitted to your staff electronically. The redline/strikeout also contains a description and rationale for each change.

If you have any questions, please contact me, or your staff may contact Jeffrey A. Frey, Acting Assistant Manager for Safety and Environment, on (509) 376-7727.

Sincerely,

Doug S. Shoop
Acting Manager

ESQ:ACM

Enclosures

cc w/encls:
Administrative Record, TSD: (325 Hazardous Waste Treatment Units, T-3-4) (Hard Copy)
Ecology NWP Library (Hardcopy)
Environmental Portal, LMSI, A3-95 (CD ROM)
HF Operating Record (J. K. Perry, MSA, H7-28) (CD ROM)

cc w/o encls:
C. M. Andersen, PNNL
G. Bohnee, NPT
F. W. Bond, Ecology
S. L. Dahl-Crumpler, Ecology
S. Harris, CTUIR
R. Jim, YN
T. M. McDermott, PNSO
A. L. Prignano, Ecology
H. T. Tilden, PNNL

APPENDIX B: COPIES OF ALL WRITTEN COMMENTS

From: leah boehm <leahboehm@hotmail.com>
Sent: Tuesday, August 26, 2014 7:27 AM
To: Hanford (ECY)
Subject: comments on Hanford

My comment is this, ***I do not think ANY waste should be put in the storage areas UNTIL all cracks in the liner have been fully repaired.***

I think is very unwise to do otherwise.

I also oppose making NEW storage areas and letting NEW waste come into Hanford.

All polluted areas must be cleaned up prior to importing new waste.

Leah boehm brady

From: Mike <mikeconlan@hotmail.com>
Sent: Thursday, September 18, 2014 6:41 PM
To: Hanford (ECY)
Subject: Public Comment on Proposed Updates

Hanford DOE:

1. cleanup ALL nuclear waste at Hanford,
2. replace ALL single shell tanks.
3. do not allow any more nuclear waste to Hanford.

Mike Conlan Redmond WA

OPERATING UNIT GROUP 5 PERMIT CONDITIONS
325 HAZARDOUS WASTE TREATMENT UNITS

OPERATING UNIT GROUP 5 PERMIT CONDITIONS
325 HAZARDOUS WASTE TREATMENT UNITS

Unit Description

The 325 Hazardous Waste Treatment Units (325 HWTUs) store and treat dangerous and/or mixed waste in containers and in a 1,218-liter tank. The 325 HWTUs consist of the Shielded Analytical Laboratory (SAL) that includes Rooms 32, 200, 201, 202, and 203; the Cask Handling Area that includes portions of Rooms 603 and 604A; the Truck Lock, Room 610; and the Hazardous Waste Treatment Unit (HWTU) that includes Rooms 520, 524, and 528 of the 325 Building located in the south portion of the 300 Area. It also includes the nearby 3714 Pad area.

List of Addenda Specific to Operating Unit Group 5

Addendum A	Part A Form, dated May 2014
Addendum B	Waste Analysis Plan, dated February 2015
Addendum C	Process Information, dated February 2015
Addendum D	Groundwater Monitoring (Reserved)
Addendum E	Procedures to Prevent Hazards, dated February 2015
Addendum F	Preparedness and Prevention, dated February 2015
Addendum G	Personnel Training, dated February 2015
Addendum H	Closure Plan, dated February 2015
Addendum I	Inspection Requirements, dated February 2015
Addendum J	Contingency Plan, dated June 17, 2011

Definitions

Reserved

Acronyms

Reserved

III.5.A COMPLIANCE WITH UNIT-SPECIFIC PERMIT CONDITIONS

III.5.A.1 The Permittees will comply with all conditions in this Chapter and its addenda with respect to dangerous and/or mixed waste management and dangerous waste management units in 325 Hazardous Waste Treatment Units (HWTUs), in addition to requirements in Permit Parts I and II.

III.5.B GENERAL WASTE MANAGEMENT

III.5.B.1 The Permittees are authorized to accept dangerous and/or mixed waste that satisfies the waste acceptance criteria in Addendum B according to the waste acceptance procedures in Addendum B for storage in the 325 HWTUs.

III.5.B.2 The Permittees are authorized to store and/or treat dangerous and/or mixed waste physically located in the 325 HWTUs as of the effective date of this Permit, and wastes accepted for storage or treatment pursuant to Permit Condition III.5.B.1.

III.5.B.3 The Permittees will maintain the physical structure of the 325 HWTUs as documented in Addendum C, Section C.1.4.1. [WAC 173-303-630(7)]

III.5.B.4 The Permittees will conduct waste loading and unloading operations consistent with and no less stringent than those practices described in Addendum F, Section F.2.1. [WAC 173-303-395]

III.5.C WASTE ANALYSIS

III.5.C.1 The Permittees will comply with requirements in Addendum B for waste analysis for all dangerous and/or mixed waste managed at this unit. [WAC 173-303-300(5)]

III.5.C.2 The Permittees will have an accurate and complete waste profile as described in Addendum B, Section B.1.1.1.2.1 for every waste stream accepted by the 325 HWTUs. [WAC 173-303-380(1)(a)(b)]

III.5.C.3 The Permittees will place a copy of each waste profile required by Permit Condition II.5.C.2 in the Hanford Facility Operating Record, 325 HWTUs File required by Permit Condition II.I.2. [WAC 173-303-380(1)(a)(b)]

III.5.C.4 The Permittees will comply with the requirements in Addendum C, Sections C.1.11, and C.2.1.5, to prevent hazards from ignitable, reactive, or incompatible wastes. [WAC 173-303-395(1)]

III.5.C.5 The Permittees will make a copy of the waste profile required by Permit Condition III.5.C.2 available upon request. [WAC 173-303-380(1)(a) and (b)]

III.5.D RECORDKEEPING AND REPORTING

III.5.D.1 The Permittees will place the following into the Hanford Facility Operating Record, 325 HWTUs File required by Permit Condition II.I.2: [WAC 173-303-380]

III.5.D.1.a A description of and quantity of each dangerous and/or mixed waste accepted for storage in the 325 HWTUs; [WAC 173-303-380(1)(a)]

III.5.D.1.b Records and results of any sampling or analysis of wastes accepted for storage at the 325 HWTUs, and from any other sampling and analysis required by Addendum B; [WAC 173-303-380(1)(c)]

III.5.D.1.c Summary reports and details of all incidents that require implementation of Addendum J, Contingency Plan according to the requirements of Permit Condition III.5.G.1; [WAC 173-303-380(1)(d)]

III.5.D.1.d An inspection log, or a summary of such log, of inspections conducted pursuant to Permit Condition III.5.H.1; [WAC 173-303-380(1)(e)]

III.5.D.1.e Records required by WAC 173-303-380(1)(k) and (o), incorporated by reference.

III.5.E SECURITY

III.5.E.1 The Permittees will maintain security at the 325 HWTUs according to the requirements in Addendum E, and in accordance with Permit Condition II.L. [WAC 173-303-310(2)(b)]

III.5.E.2 The Permittees will post warning signs at all entrances to the 325 HWTUs. [WAC 173-303-310(2)(a)]

III.5.F PREPAREDNESS AND PREVENTION

III.5.F.1 The Permittees will comply with the Preparedness and Prevention requirements in Addendum F. [WAC 173-303-340]

III.5.G CONTINGENCY PLAN

III.5.G.1 The Permittee will comply with Addendum J, in addition to the requirements of Permit Condition II.A when applicable. Enforceable portions of Addendum J are identified in Permit Addendum J, Page J-i. [WAC 173-303-350]

III.5.H INSPECTIONS

III.5.H.1 The Permittee will perform inspections of the 325 HWTUs according to Addendum I, Inspection Plan. The inspection shall include:

III.5.H.1.a All monitoring equipment, safety and emergency equipment, security devices and operating and structural equipment that help prevent, detect, or respond to hazards to the public health or the environment. [WAC 173-303-320(2)]

III.5.H.2 The inspection schedule required by Permit Condition III.5.H.1 will provide the frequency of inspection for specific items. The frequency should be based on the rate of possible deterioration of equipment and the probability of an environmental or human health incident. Areas subject to spills must be inspected daily when in use. [WAC 173-303-320(2)(c)]

III.5.H.3 The Permittee must remedy any problems revealed by inspections conducted pursuant to Permit Condition III.5.H.1, on a schedule that prevents hazards to the public health and the environment. Where a hazard is imminent or has already occurred, remedial action must be taken immediately. [WAC 173-303-320(3)]

III.5.H.4 The Permittees will place a copy of the inspection requirements and schedule prepared according to Permit Condition III.5.H.1 in the Hanford Facility Operating Record, 325 HWTUs File required by Permit Condition II.I.2. [WAC 173-303-320(2)(a)]

III.5.H.5 The Permittee will keep an inspection log or summary of inspections conducted pursuant to Permit Condition III.5.H.1, including at a minimum the following:

III.5.H.5.a Date and time of the inspection;

III.5.H.5.b Printed name and the handwritten signature of the inspector;

III.5.H.5.c Notation of the observations made;

III.5.H.5.d An account of spills or discharges in accordance with Permit Condition II.E, and the date and description of any repairs or remedial actions taken.

III.5.I TRAINING PLAN

III.5.I.1 The Permittee will include Addendum G training requirements in the written training plan required by Permit Condition II.C. [WAC 173-303-330]

III.5.J OTHER GENERAL REQUIREMENTS

III.5.J.1 The Permittees will conduct waste management activities within 325 HWTUs authorized by this Permit according to the requirements in Addendum F, Sections F.3.1, and F.3.2. The Permittees will document compliance with these provisions in the Hanford Facility Operating Record, 325 HWTUs File. [WAC 173-303-395(1)(a)-(c)]

III.5.J.2 The Permittees will comply with the requirements of WAC 173-303-395(2), incorporated by reference.

III.5.K CLOSURE

III.5.K.1 The Permittees will close the 325 HWTUs in accordance with Addendum H, Closure Plan. [WAC 173-303-610(4)]

III.5.K.2 The Permittees will amend the Closure Plan in accordance with Permit Condition II.J.3 and Addendum H. [WAC 173-303-610(3)(b)]

III.5.K.3 The Permittees will provide Ecology with a Notice of Closure in accordance with Addendum H. [WAC 173-303-610(3)(c)]

III.5.L **POST CLOSURE**

Reserved

III.5.M **CRITICAL SYSTEMS**

Reserved

III.5.N **RESERVED**

III.5.O **CONTAINERS**

III.5.O.1 Container Storage Unit Standards

III.5.O.1.a The Permittees will maintain the integrity of container storage secondary containment as documented in Addendum C, Sections C.1.4, and C.1.5, including all chemically resistant coatings and sealants described in Addendum C, Section C.1.4.1, as necessary to ensure any spills or releases do not migrate to the underlying concrete or soils.

III.5.O.1.b The Permittees will place documentation of any damage to and subsequent repairs of chemically resistant coatings in the Hanford Facility Operating Record, 325 HWTUs File required by Permit Condition II.I.2. [WAC 173-303-630(7)]

III.5.O.1.c Within thirty (30) days of the effective date of this Permit, the Permittee will place documentation in the Hanford Facility Operating Record, 325 HWTUs File identifying the specific chemical resistant floor and wall coatings used for secondary containment in the 325 HWTUs. This documentation will demonstrate that these materials are impervious to the wastes managed in each of the 325 HWTUs cells to contain spills until the collected material is detected and removed. [WAC 173-303-630(7)(a)(i)]

III.5.O.2 Container Management Standards

III.5.O.2.a The Permittees are authorized to manage containerized wastes at the 325 HWTUs according to the requirements of Addendum C, Section C.1.2. [WAC 173-303-630(2)]

III.5.O.2.b The Permittees will store containers according to the waste segregation and storage arrangements specified in Addendum C, and the hazard class assigned as part of the waste acceptance process required by Addendum B. [WAC 173-303-630(7), WAC 173-303-395(2)]

III.5.O.2.c In addition to storage capacity limitations specified elsewhere in this Chapter, the Permittees will ensure that the storage limits for flammable liquids, combustible liquids, combustible fibers, flammable gasses and liquefied flammable gasses identified in WAC 173-303-630(8)(b) are not exceeded at any time. In addition, the Permittees will ensure the capacity limitation for explosive waste in WAC 173-303-630(8)(a) is not exceeded at any time. [WAC 173-303-630(8)]

III.5.O.2.d The Permittees will label containers according to the requirements of Addendum C, Section C.1.3. The Permittees will also ensure that:

III.5.O.2.d.i Container labels are not obscured or are otherwise unreadable;

III.5.O.2.d.ii Container labels are not obscured, removed, or otherwise unreadable in the course of inspection;

III.5.O.2.d.iii Container labels are removed or completely obscured when the container to which they are attached is rendered empty. [WAC 173-303-630(3)]

III.5.O.2.e The Permittees will ensure wastes are compatible with containers in which they are managed and with other wastes stored at the 325 HWTUs according to the requirements Addendum C, Section C.1.11, and Addendum F, Section F.3.2. [WAC 173-303-630(4), WAC 173-303-630(9)]

III.5.O.2.f The Permittees will comply with the requirements for managing wastes in containers in WAC 173-303-630(5)(a) and (b), incorporated by reference.

III.5.O.2.g The Permittees will ensure the physical arrangement and spacing of containers within the 325 HWTUs satisfies the following requirements. [WAC 173-303-630(5)(c)]

III.5.O.2.g.i The Permittees will comply with the requirements for waste stored in cells, storage cabinets and shelves, as documented in Addendum C, Section C.1.2;

III.5.O.2.g.ii The Permittees will ensure the physical arrangement and spacing of drums that are stored in the 325 HWTUs are stored in rows no more than two drums wide and with a separation of at least thirty (30) inches between rows of drums to ensure that all drums are readily accessible for movement and inspection. [WAC 173-303-630(5)(c), WAC 173-303-340(3)]

III.5.O.2.h The Permittees will remove any accumulated liquids from container storage areas in the 325 HWTUs, including individual secondary containment systems (spill pallets, portable booms, or other commercially available drum containment systems) that may be used to ensure containers are not in contact with free liquids and to prevent overflow of the container storage area secondary containment. [WAC 173-303-630(7)]

III.5.O.2.i The Permittees may treat wastes in containers via consolidation of wastes, decanting of free liquids and addition of absorbents. Absorbents must satisfy the requirements of WAC 173-303-140(4)(b)(iv), incorporated by reference, for wastes to be land disposed in Washington. The Permittees may not use addition of absorbents for purposes of changing the treatability group of a waste with respect to the land disposal restriction standards of 40 CFR 268, incorporated by reference by WAC 173-303-140.

III.5.O.2.j Waste stored in the SAL and the Cask Handling Area is exempt from WAC 173-303-692, as those units are used exclusively to manage mixed waste. The Permittees will comply with the requirements for air emissions from containers in Addendum C, Section C.3 for waste stored in the other portions of the 325 HWTUs. [WAC 173-303-692]

III.5.O.3 Container Storage Inspection Requirements

III.5.O.3.a The Permittee will inspect the 325 HWTUs according to Addendum I, Inspection Requirements. [WAC 173-303-630(6)]

III.5.O.3.b The Permittees will comply with the requirements of WAC 173-303-395(1)(d), incorporated by reference. [WAC 173-303-395(1)(d)]

III.5.P TANK SYSTEMS

III.5.P.1 The Permittees will develop, maintain, and follow a written schedule and requirements for conducting integrity assessments. The schedule will meet the requirements of Addendum C, Section C.2.1.1.2 and consideration of the following factors:

III.5.P.1.a Results of past integrity assessments;

III.5.P.1.b Age of the tank system(s);

III.5.P.1.c Materials of construction of each tank system, including any liners;

III.5.P.1.d Characteristics of the wastes managed by each tank system;

III.5.P.1.e Any other relevant factors. [WAC 173-303-640(2)(e)]

III.5.P.2 The Permittees will maintain a copy of the schedule required by Permit Condition III.5.P.1 in the Hanford Facility Operating Record, 325 HWTUs File, and conduct periodic integrity assessments according to the schedules and requirements of the schedule. If results of these assessments indicate a tank has structural deficiencies or

lacks integrity such that it may collapse, rupture or fail, the Permittees must follow the requirements of WAC 173-303-640(7), incorporated by reference. [WAC 173-303-640(2)(e)]

III.5.P.3 If the findings of an integrity assessment conducted pursuant to Permit Condition III.5.P.1 indicate a tank has structural deficiencies or lacks integrity such that it may collapse, rupture or fail, the Permittees will evaluate the waste acceptance criteria in Addendum B, the applicable tank design and/or operating requirements in Addendum C, and any other Permit requirements which may reasonably influence the integrity of the tank in question. Based on this review, the Permittees will request the required Permit modifications in accordance with Permit Condition I.C.3 to minimize any adverse effects of future waste management activities on the integrity of the tank. [WAC 173-303-640(2)(d), WAC 173-303-815(2)(b)]

III.5.P.4 Tank System Operating Requirements

III.5.P.4.a The Permittees will comply with the requirements of WAC 173-303-640(5)(a), incorporated by reference.

III.5.P.4.b The Permittees will comply with the requirements of Addendum C, Section C.2.1.2.4. [WAC 173-303-640(5)(b)]

III.5.P.4.c The Permittees will comply with the requirements of Addendum C, Section C.2.1.4. [WAC 173-303-640(5)(d)]

III.5.P.4.d The Permittees will comply with the requirements of WAC 173-303-640(7), incorporated by reference, in response to spills or leaks from tank systems at Operating Unit Group 5. [WAC 173-303-640(5)(c)]

III.5.P.4.e The Permittees will comply with the requirements of WAC 173-303-640(10), incorporated by reference.

III.5.P.5 Tank System Inspection Requirement

III.5.P.5.a The Permittees will inspect the Operating Unit Group 5 tank systems authorized by Permit Condition III.5.B.2 according to Addendum I, Inspection Requirements. [WAC 173-303-640(6)(a)-(c)]

III.5.P.5.b The Permittees will place documentation of inspections conducted pursuant to Permit Condition III.3.P.5.a in the Hanford Facility Operating Record, 325 HWTUs File required by Permit Condition II.I.2. These records will contain the following information: [WAC 173-303-640(6)(d)]

III.5.P.5.b.i Date and time of the inspection

III.5.P.5.b.ii Printed name and the handwritten signature of the inspector

III.5.P.5.b.iii Notation of the observations made

III.5.P.5.b.iv Date and description of any repairs or remedial actions taken, and/or the scheduled date for the repairs or remedial actions.

III.5.P.5.c The Permittees will remedy any problems revealed by the inspections required by Permit Condition III.3.P.9, on a schedule that prevents hazards to the public health and environment. Where a hazard is imminent or has already occurred, remedial action must be taken immediately. [WAC 173-303-640(6)(d)]

III.5.P.6 Approved Waste and Storage Limits

III.5.P.6.a Subject to conditions in Addendum C, the Permittees may store a maximum of 1,218 liters of dangerous and/or mixed waste in the tank system in the 325 HWTUs

(S02). A maximum of 1,218 liters per day of dangerous and/or mixed waste may be treated in tanks in the 325 HWTUs (T01).

III.5.P.6.b The Permittees shall only store or treat in the SAL tank the following mixed waste listed in the Dangerous and Mixed Waste Tank System:

III.5.P.6.b.i Dangerous and/or mixed waste generated by Pacific Northwest National Laboratory; or

III.5.P.6.b.ii Mixed waste generated at other Hanford Facility locations and mixed waste generated from offsite facilities, which have been transferred and accepted by the 325 HWTUs pursuant to the provisions in Addendum B, Waste Analysis Plan, and this Permit.

III.5.P.7 Tank System Design and Construction

III.5.P.7.a Tank System Installation and Certification will be retained by the Permittees and made available upon request.

III.5.P.8 Integrity Assessments

III.5.P.8.a Results of the integrity assessments shall be included in the Hanford Facility Operating Record, 325 HWTUs File until final closure and corrective action are complete and certified.

III.5.P.8.b Any tank system, including its secondary containment system, found to be leaking, or otherwise unfit for service, immediately shall be removed from service and the Permittees shall comply with the requirements of WAC 173-303-640(7). Such a tank system, including its secondary containment system, shall not be returned to service until the Permittees have obtained the required certification.

III.5.P.8.c The Permittees shall maintain the integrity of all containment systems for tank systems.

III.5.P.9 Tank Management Practices

III.5.P.9.a The Permittees shall not place mixed wastes or treatment reagents in the tank system if these could cause the tank, its ancillary equipment, or a containment system to rupture, leak, corrode, or otherwise fail.

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Dangerous Waste Permit Application Part A Form

Date Received	Reviewed by:	Date:
Month Day Year	Approved by:	Date:

I. This form is submitted to: (place an "X" in the appropriate box)

☒	Request modification to a final status permit (commonly called a "Part B" permit)
☐	Request a change under interim status
☐	Apply for a final status permit. This includes the application for the initial final status permit for a site or for a permit renewal (i.e., a new permit to replace an expiring permit).
☐	Establish interim status because of the wastes newly regulated on: (Date)
	List waste codes:

II. EPA/State ID Number

W A 7 8 9 0 0 0 8 9 6 7

III. Name of Facility

US Department of Energy – Hanford Facility

IV. Facility Location (Physical address not P.O. Box or Route Number)

A. Street

825 Jadwin

City or Town	State	ZIP Code
Richland	WA	99352

County Code (if known)	County Name
0 0 5	Benton

B. Land Type	C. Geographic Location Latitude (degrees, mins, secs)	Longitude (degrees, mins, secs)	D. Facility Existence Date Month Day Year
F	Refer to TOPO Map (Section XV.)		0 3 2 2 1 9 4 3

V. Facility Mailing Address

Street or P.O. Box

P.O. Box 550

City or Town	State	ZIP Code
Richland	WA	99352

VI. Facility contact (Person to be contacted regarding waste activities at facility)		
Name (last)	**(first)**	
Shoop	Doug	
Job Title	**Phone Number (area code and number)**	
Acting Manager	(509) 376-7395	
Contact Address		
Street or P.O. Box		
P.O. Box 550		
City or Town	**State**	**ZIP Code**
Richland	WA	99352

VII. Facility Operator Information		
A. Name	**Phone Number (area code and number)**	
Department of Energy Owner/Operator Pacific Northwest National Laboratory Co-Operator for 325 HWTUs*	(509) 376-7395 (509) 372-6503	
Street or P.O. Box		
P.O. Box 550 P.O. Box 999		
City or Town	**State**	**ZIP Code**
Richland	WA	99352
B. Operator Type F		
C. Does the name in VII.A reflect a proposed change in operator? ☐ Yes ☒ No **If yes, provide the scheduled date for the change:**	**Month**	**Day** **Year**
D. Is the name listed in VII.A. also the owner? If yes, skip to Section VIII.C. ☐ Yes ☒ No		

VIII. Facility Owner Information		
A. Name	**Phone Number (area code and number)**	
Doug S. Shoop, Operator/Facility-Property Owner	(509) 376-7395	
Street or P.O. Box		
P.O. Box 550		
City or Town	**State**	**ZIP Code**
Richland	WA	99352
B. Operator Type F		
C. Does the name in VII.A reflect a proposed change in operator? ☐ Yes ☒ No **If yes, provide the scheduled date for the change:**	**Month**	**Day** **Year**

IX. NAICS Codes (5/6 digit codes)	
A. First	**B. Second**
5417 12 Research & Development in the Physical, Engineering, & Life Sciences	
C. Third	**D. Fourth**

X. Other Environmental Permits (see instructions)															
A. Permit Type			B. Permit Number												C. Description
	E		A	I	R	-	1	1	-		7	0	4		WAC 246-247, Non radioactive Air, 40 CFR 61, Subpart H, NESHAPS

XI. Nature of Business (provide a brief description that includes both dangerous waste and non-dangerous waste areas and activities)

The 325 Hazardous Waste Treatment Units (325 HWTUs) consist of the Shielded Analytical Laboratory (SAL), which includes Rooms 32, 200, 201, 202, and 203 of the 325 Building; the Hazardous Waste Treatment Unit (HWTU), encompassing Rooms 520, 524, and 528 of the 325 Building; the Cask Handling Area, consisting of the northern portion of Rooms 603 and 604A of the 325 Building; the Truck Lock, Room 610 of the 325 Building; and the 3714 Pad area, an outdoor storage area adjacent to the 325 Building. The 325 HWTUs began waste management operations in 1991 (SAL) and 1995 (HWTU); the Cask Handling Area, the Truck Lock, and the 3714 Pad were added in 2014.

Dangerous or mixed waste treatments in the SAL and HWTU are generally conducted as small bench-scale operations except for in-tank treatments. Treatment processes utilized at the 325 HWTUs may include any of the types of treatment described in WAC 173-303-380(2)(d), Table 2, Section 2 except for the following: incineration technologies (T06-T10), large-scale biological treatment (T68, T72, and T73), boiler and industrial furnace-based treatment (T80-T93), and treatment in containment buildings (T94).

Routine dangerous and/or mixed waste treatment that will be conducted in the SAL and HWTU will include pH adjustment, ion exchange, carbon absorption, oxidation, reduction, waste concentration by evaporation, precipitation, filtration, solvent extraction, solids washing, phase separation, catalytic destruction, and solidification/stabilization. These waste treatments will be conducted on small quantities of diverse radioactive, dangerous, and/or mixed wastes generated from ongoing research and development and analytical chemistry activities.

Activities in the Cask Handling Area, the Truck Lock, and the 3714 Pad are focused on preparation and staging of dangerous or mixed waste for shipment to treatment or disposal facilities. Activities include repackaging, stabilization and void filling, and staging and storage for shipment. This activity often involves placing containers in 4'x4'x8' burial boxes and filling void spaces with concrete. The use of burial boxes is the reason these units require significantly larger treatment and storage capabilities; the actual amount of waste generated is not the reason for the larger capacity shown. The Cask Handling Area also contains a hood where small-scale treatment like that performed in the HWTU and SAL units can occur.

EXAMPLE FOR COMPLETING ITEMS XII and XIII (shown in lines numbered X-1, X-2, and X-3 below): A facility has two storage tanks that hold 1200 gallons and 400 gallons respectively. There is also treatment in tanks at 20 gallons/hr. Finally, a one-quarter acre area that is two meters deep will undergo *in situ vitrification.*

Section XII. Process Codes and Design Capacities								Section XIII. Other Process Codes							
Line Number		A. Process Codes (enter code)			B. Process Design Capacity		C. Process Total Number of Units	Line Number		A. Process Codes (enter code)			B Process Design Capacity		C. Process Total Number of Units	D. Process Description
					1. Amount	2. Unit of Measure (enter code)							1. Amount	2. Unit of Measure (enter code)		
X	1	S	0	2	1,600	G	002	X	1	T	0	4	700	C	001	In situ vitrification
X	2	T	0	3	20	E	001									
X	3	T	0	4	700	C	001									
	1	S	0	1	50,360	L	005		1							
	2	S	0	2	1,218	L	001		2	T	0	4	39,874	V	005	Treatment in containers
	3	T	0	1	1,218	V	001		3							
	4	T	0	4	39,874	V	005		4							
	5								5							
	6								6							
	7								7							
	8								8							
	9								9							
1	0							1	0							
1	1							1	1							
1	2							1	2							
1	3							1	3							
1	4							1	4							
1	5							1	5							
1	6							1	6							
1	7							1	7							
1	8							1	8							
1	9							1	9							
2	0							2	0							
2	1							2	1							
2	2							2	2							
2	3							2	3							
2	4							2	4							
2	5							2	5							

XIV. Description of Dangerous Wastes

Example for completing this section: A facility will receive three non-listed wastes, then store and treat them on-site. Two wastes are corrosive only, with the facility receiving and storing the wastes in containers. There will be about 200 pounds per year of each of these two wastes, which will be neutralized in a tank. The other waste is corrosive and ignitable and will be neutralized then blended into hazardous waste fuel. There will be about 100 pounds per year of that waste, which will be received in bulk and put into tanks.

Line Number	A. Dangerous Waste No.	B. Estimated Annual Quantity of Waste	C. Unit of Measure	D. Processes	
				(1) Process Codes	(2) Process Description [If a code is not entered in D (1)]
X 1	D 0 0 2	400	P	S 0 1 T 0 1	
X 2	D 0 0 1	100	P	S 0 2 T 0 1	
X 3	D 0 0 2				Included with above
1	D 0 0 1	146,500 [92,000 (S01); 54,500 (T04)]	K	S 0 1 T 0 4	Includes Debris
2	D 0 0 2		K	S 0 1 T 0 4	Includes Debris
3	D 0 0 3		K	S 0 1 T 0 4	Includes Debris
4	D 0 0 4		K	S 0 1 T 0 4	Includes Debris
5	D 0 0 5		K	S 0 1 T 0 4	Includes Debris
6	D 0 0 6		K	S 0 1 T 0 4	Includes Debris
7	D 0 0 7		K	S 0 1 T 0 4	Includes Debris
8	D 0 0 8		K	S 0 1 T 0 4	Includes Debris
9	D 0 0 9		K	S 0 1 T 0 4	Includes Debris
10	D 0 1 0		K	S 0 1 T 0 4	Includes Debris
11	D 0 1 1		K	S 0 1 T 0 4	Includes Debris
12	D 0 1 2		K	S 0 1 T 0 4	Includes Debris
13	D 0 1 3		K	S 0 1 T 0 4	Includes Debris
14	D 0 1 4		K	S 0 1 T 0 4	Includes Debris
15	D 0 1 5		K	S 0 1 T 0 4	Includes Debris
16	D 0 1 6		K	S 0 1 T 0 4	Includes Debris
17	D 0 1 7		K	S 0 1 T 0 4	Includes Debris
18	D 0 1 8		K	S 0 1 T 0 4	Includes Debris
19	D 0 1 9		K	S 0 1 T 0 4	Includes Debris
20	D 0 2 0		K	S 0 1 T 0 4	Includes Debris
21	D 0 2 1		K	S 0 1 T 0 4	Includes Debris
22	D 0 2 2		K	S 0 1 T 0 4	Includes Debris
23	D 0 2 3		K	S 0 1 T 0 4	Includes Debris
24	D 0 2 4		K	S 0 1 T 0 4	Includes Debris
25	D 0 2 5		K	S 0 1 T 0 4	Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

Line Number	A. Dangerous Waste No.	B. Estimated Annual Quantity of Waste	C. Unit of Measure	D. Process	
				(1) Process Codes	(2) Process Description [If a code is not entered in D (1)]
26	D026		K	S01 T04	Includes Debris
27	D027		K	S01 T04	Includes Debris
28	D028		K	S01 T04	Includes Debris
29	D029		K	S01 T04	Includes Debris
30	D030		K	S01 T04	Includes Debris
31	D031		K	S01 T04	Includes Debris
32	D032		K	S01 T04	Includes Debris
33	D033		K	S01 T04	Includes Debris
34	D034		K	S01 T04	Includes Debris
35	D035		K	S01 T04	Includes Debris
36	D036		K	S01 T04	Includes Debris
37	D037		K	S01 T04	Includes Debris
38	D038		K	S01 T04	Includes Debris
39	D039		K	S01 T04	Includes Debris
40	D040		K	S01 T04	Includes Debris
41	D041		K	S01 T04	Includes Debris
42	D042		K	S01 T04	Includes Debris
43	D043		K	S01 T04	Includes Debris
44	F001		K	S01 T04	Includes Debris
45	F002		K	S01 T04	Includes Debris
46	F003		K	S01 T04	Includes Debris
47	F004		K	S01 T04	Includes Debris
48	F005		K	S01 T04	Includes Debris
49	F027		K	S01 T04	Includes Debris
50	F039		K	S01 T04	Includes Debris
51	P001		K	S01 T04	Includes Debris
52	P002		K	S01 T04	Includes Debris
53	P003		K	S01 T04	Includes Debris
54	P004		K	S01 T04	Includes Debris
55	P005		K	S01 T04	Includes Debris
56	P006		K	S01 T04	Includes Debris
57	P007		K	S01 T04	Includes Debris
58	P008		K	S01 T04	Includes Debris
59	P009		K	S01 T04	Includes Debris
60	P010		K	S01 T04	Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

61	P	0	1	1		K	S	0	1	T	0	4				Includes Debris
62	P	0	1	2		K	S	0	1	T	0	4				Includes Debris
63	P	0	1	3		K	S	0	1	T	0	4				Includes Debris
64	P	0	1	4		K	S	0	1	T	0	4				Includes Debris
65	P	0	1	5		K	S	0	1	T	0	4				Includes Debris
66	P	0	1	6		K	S	0	1	T	0	4				Includes Debris
67	P	0	1	7		K	S	0	1	T	0	4				Includes Debris
68	P	0	1	8		K	S	0	1	T	0	4				Includes Debris
69	P	0	2	0		K	S	0	1	T	0	4				Includes Debris
70	P	0	2	1		K	S	0	1	T	0	4				Includes Debris
71	P	0	2	2		K	S	0	1	T	0	4				Includes Debris
72	P	0	2	3		K	S	0	1	T	0	4				Includes Debris
73	P	0	2	4		K	S	0	1	T	0	4				Includes Debris
74	P	0	2	6		K	S	0	1	T	0	4				Includes Debris
75	P	0	2	7		K	S	0	1	T	0	4				Includes Debris
76	P	0	2	8		K	S	0	1	T	0	4				Includes Debris
77	P	0	2	9		K	S	0	1	T	0	4				Includes Debris
78	P	0	3	0		K	S	0	1	T	0	4				Includes Debris
79	P	0	3	1		K	S	0	1	T	0	4				Includes Debris
80	P	0	3	3		K	S	0	1	T	0	4				Includes Debris
81	P	0	3	4		K	S	0	1	T	0	4				Includes Debris
82	P	0	3	6		K	S	0	1	T	0	4				Includes Debris
83	P	0	3	7		K	S	0	1	T	0	4				Includes Debris
84	P	0	3	8		K	S	0	1	T	0	4				Includes Debris
85	P	0	3	9		K	S	0	1	T	0	4				Includes Debris
86	P	0	4	0		K	S	0	1	T	0	4				Includes Debris
87	P	0	4	1		K	S	0	1	T	0	4				Includes Debris
88	P	0	4	2		K	S	0	1	T	0	4				Includes Debris
89	P	0	4	3		K	S	0	1	T	0	4				Includes Debris
90	P	0	4	4		K	S	0	1	T	0	4				Includes Debris
91	P	0	4	5		K	S	0	1	T	0	4				Includes Debris
92	P	0	4	6		K	S	0	1	T	0	4				Includes Debris
93	P	0	4	7		K	S	0	1	T	0	4				Includes Debris
94	P	0	4	8		K	S	0	1	T	0	4				Includes Debris
95	P	0	4	9		K	S	0	1	T	0	4				Includes Debris
96	P	0	5	0		K	S	0	1	T	0	4				Includes Debris
97	P	0	5	1		K	S	0	1	T	0	4				Includes Debris
98	P	0	5	4		K	S	0	1	T	0	4				Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

99	P	0	5	6		K	S	0	1	T	0	4			Includes Debris
100	P	0	5	7		K	S	0	1	T	0	4			Includes Debris
101	P	0	5	8		K	S	0	1	T	0	4			Includes Debris
102	P	0	5	9		K	S	0	1	T	0	4			Includes Debris
103	P	0	6	0		K	S	0	1	T	0	4			Includes Debris
104	P	0	6	2		K	S	0	1	T	0	4			Includes Debris
105	P	0	6	3		K	S	0	1	T	0	4			Includes Debris
106	P	0	6	4		K	S	0	1	T	0	4			Includes Debris
107	P	0	6	5		K	S	0	1	T	0	4			Includes Debris
108	P	0	6	6		K	S	0	1	T	0	4			Includes Debris
109	P	0	6	7		K	S	0	1	T	0	4			Includes Debris
110	P	0	6	8		K	S	0	1	T	0	4			Includes Debris
111	P	0	6	9		K	S	0	1	T	0	4			Includes Debris
112	P	0	7	0		K	S	0	1	T	0	4			Includes Debris
113	P	0	7	1		K	S	0	1	T	0	4			Includes Debris
114	P	0	7	2		K	S	0	1	T	0	4			Includes Debris
115	P	0	7	3		K	S	0	1	T	0	4			Includes Debris
116	P	0	7	4		K	S	0	1	T	0	4			Includes Debris
117	P	0	7	5		K	S	0	1	T	0	4			Includes Debris
118	P	0	7	6		K	S	0	1	T	0	4			Includes Debris
119	P	0	7	7		K	S	0	1	T	0	4			Includes Debris
120	P	0	7	8		K	S	0	1	T	0	4			Includes Debris
121	P	0	8	1		K	S	0	1	T	0	4			Includes Debris
122	P	0	8	2		K	S	0	1	T	0	4			Includes Debris
123	P	0	8	4		K	S	0	1	T	0	4			Includes Debris
124	P	0	8	5		K	S	0	1	T	0	4			Includes Debris
125	P	0	8	7		K	S	0	1	T	0	4			Includes Debris
126	P	0	8	8		K	S	0	1	T	0	4			Includes Debris
127	P	0	8	9		K	S	0	1	T	0	4			Includes Debris
128	P	0	9	2		K	S	0	1	T	0	4			Includes Debris
129	P	0	9	3		K	S	0	1	T	0	4			Includes Debris
130	P	0	9	4		K	S	0	1	T	0	4			Includes Debris
131	P	0	9	5		K	S	0	1	T	0	4			Includes Debris
132	P	0	9	6		K	S	0	1	T	0	4			Includes Debris
133	P	0	9	7		K	S	0	1	T	0	4			Includes Debris
134	P	0	9	8		K	S	0	1	T	0	4			Includes Debris
135	P	0	9	9		K	S	0	1	T	0	4			Includes Debris
136	P	1	0	1		K	S	0	1	T	0	4			Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

137	P	1	0	2		K	S	0	1	T	0	4				Includes Debris
138	P	1	0	3		K	S	0	1	T	0	4				Includes Debris
139	P	1	0	4		K	S	0	1	T	0	4				Includes Debris
140	P	1	0	5		K	S	0	1	T	0	4				Includes Debris
141	P	1	0	6		K	S	0	1	T	0	4				Includes Debris
142	P	1	0	8		K	S	0	1	T	0	4				Includes Debris
143	P	1	0	9		K	S	0	1	T	0	4				Includes Debris
144	P	1	1	0		K	S	0	1	T	0	4				Includes Debris
145	P	1	1	1		K	S	0	1	T	0	4				Includes Debris
146	P	1	1	2		K	S	0	1	T	0	4				Includes Debris
147	P	1	1	3		K	S	0	1	T	0	4				Includes Debris
148	P	1	1	4		K	S	0	1	T	0	4				Includes Debris
149	P	1	1	5		K	S	0	1	T	0	4				Includes Debris
150	P	1	1	6		K	S	0	1	T	0	4				Includes Debris
151	P	1	1	8		K	S	0	1	T	0	4				Includes Debris
152	P	1	1	9		K	S	0	1	T	0	4				Includes Debris
153	P	1	2	0		K	S	0	1	T	0	4				Includes Debris
154	P	1	2	1		K	S	0	1	T	0	4				Includes Debris
155	P	1	2	2		K	S	0	1	T	0	4				Includes Debris
156	P	1	2	3		K	S	0	1	T	0	4				Includes Debris
157	P	1	2	7		K	S	0	1	T	0	4				Includes Debris
158	P	1	2	8		K	S	0	1	T	0	4				Includes Debris
159	P	1	8	5		K	S	0	1	T	0	4				Includes Debris
160	P	1	8	8		K	S	0	1	T	0	4				Includes Debris
161	P	1	8	9		K	S	0	1	T	0	4				Includes Debris
162	P	1	9	0		K	S	0	1	T	0	4				Includes Debris
163	P	1	9	1		K	S	0	1	T	0	4				Includes Debris
164	P	1	9	2		K	S	0	1	T	0	4				Includes Debris
165	P	1	9	4		K	S	0	1	T	0	4				Includes Debris
166	P	1	9	6		K	S	0	1	T	0	4				Includes Debris
167	P	1	9	7		K	S	0	1	T	0	4				Includes Debris
168	P	1	9	8		K	S	0	1	T	0	4				Includes Debris
169	P	1	9	9		K	S	0	1	T	0	4				Includes Debris
170	P	2	0	1		K	S	0	1	T	0	4				Includes Debris
171	P	2	0	2		K	S	0	1	T	0	4				Includes Debris
172	P	2	0	3		K	S	0	1	T	0	4				Includes Debris
173	P	2	0	4		K	S	0	1	T	0	4				Includes Debris
174	P	2	0	5		K	S	0	1	T	0	4				Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

175	U	0	0	1		K	S	0	1	T	0	4			Includes Debris
176	U	0	0	2		K	S	0	1	T	0	4			Includes Debris
177	U	0	0	3		K	S	0	1	T	0	4			Includes Debris
178	U	0	0	4		K	S	0	1	T	0	4			Includes Debris
179	U	0	0	5		K	S	0	1	T	0	4			Includes Debris
180	U	0	0	6		K	S	0	1	T	0	4			Includes Debris
181	U	0	0	7		K	S	0	1	T	0	4			Includes Debris
182	U	0	0	8		K	S	0	1	T	0	4			Includes Debris
183	U	0	0	9		K	S	0	1	T	0	4			Includes Debris
184	U	0	1	0		K	S	0	1	T	0	4			Includes Debris
185	U	0	1	1		K	S	0	1	T	0	4			Includes Debris
186	U	0	1	2		K	S	0	1	T	0	4			Includes Debris
187	U	0	1	4		K	S	0	1	T	0	4			Includes Debris
188	U	0	1	5		K	S	0	1	T	0	4			Includes Debris
189	U	0	1	6		K	S	0	1	T	0	4			Includes Debris
190	U	0	1	7		K	S	0	1	T	0	4			Includes Debris
191	U	0	1	8		K	S	0	1	T	0	4			Includes Debris
192	U	0	1	9		K	S	0	1	T	0	4			Includes Debris
193	U	0	2	0		K	S	0	1	T	0	4			Includes Debris
194	U	0	2	1		K	S	0	1	T	0	4			Includes Debris
195	U	0	2	2		K	S	0	1	T	0	4			Includes Debris
196	U	0	2	3		K	S	0	1	T	0	4			Includes Debris
197	U	0	2	4		K	S	0	1	T	0	4			Includes Debris
198	U	0	2	5		K	S	0	1	T	0	4			Includes Debris
199	U	0	2	6		K	S	0	1	T	0	4			Includes Debris
200	U	0	2	7		K	S	0	1	T	0	4			Includes Debris
201	U	0	2	8		K	S	0	1	T	0	4			Includes Debris
202	U	0	2	9		K	S	0	1	T	0	4			Includes Debris
203	U	0	3	0		K	S	0	1	T	0	4			Includes Debris
204	U	0	3	1		K	S	0	1	T	0	4			Includes Debris
205	U	0	3	2		K	S	0	1	T	0	4			Includes Debris
206	U	0	3	3		K	S	0	1	T	0	4			Includes Debris
207	U	0	3	4		K	S	0	1	T	0	4			Includes Debris
208	U	0	3	5		K	S	0	1	T	0	4			Includes Debris
209	U	0	3	6		K	S	0	1	T	0	4			Includes Debris
210	U	0	3	7		K	S	0	1	T	0	4			Includes Debris
211	U	0	3	8		K	S	0	1	T	0	4			Includes Debris
212	U	0	3	9		K	S	0	1	T	0	4			Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

213	U	0	4	1		K	S	0	1	T	0	4			Includes Debris
214	U	0	4	2		K	S	0	1	T	0	4			Includes Debris
215	U	0	4	3		K	S	0	1	T	0	4			Includes Debris
216	U	0	4	4		K	S	0	1	T	0	4			Includes Debris
217	U	0	4	5		K	S	0	1	T	0	4			Includes Debris
218	U	0	4	6		K	S	0	1	T	0	4			Includes Debris
219	U	0	4	7		K	S	0	1	T	0	4			Includes Debris
220	U	0	4	8		K	S	0	1	T	0	4			Includes Debris
221	U	0	4	9		K	S	0	1	T	0	4			Includes Debris
222	U	0	5	0		K	S	0	1	T	0	4			Includes Debris
223	U	0	5	1		K	S	0	1	T	0	4			Includes Debris
224	U	0	5	2		K	S	0	1	T	0	4			Includes Debris
225	U	0	5	3		K	S	0	1	T	0	4			Includes Debris
226	U	0	5	5		K	S	0	1	T	0	4			Includes Debris
227	U	0	5	6		K	S	0	1	T	0	4			Includes Debris
228	U	0	5	7		K	S	0	1	T	0	4			Includes Debris
229	U	0	5	8		K	S	0	1	T	0	4			Includes Debris
230	U	0	5	9		K	S	0	1	T	0	4			Includes Debris
231	U	0	6	0		K	S	0	1	T	0	4			Includes Debris
232	U	0	6	1		K	S	0	1	T	0	4			Includes Debris
233	U	0	6	2		K	S	0	1	T	0	4			Includes Debris
234	U	0	6	3		K	S	0	1	T	0	4			Includes Debris
235	U	0	6	4		K	S	0	1	T	0	4			Includes Debris
236	U	0	6	6		K	S	0	1	T	0	4			Includes Debris
237	U	0	6	7		K	S	0	1	T	0	4			Includes Debris
238	U	0	6	8		K	S	0	1	T	0	4			Includes Debris
239	U	0	6	9		K	S	0	1	T	0	4			Includes Debris
240	U	0	7	0		K	S	0	1	T	0	4			Includes Debris
241	U	0	7	1		K	S	0	1	T	0	4			Includes Debris
242	U	0	7	2		K	S	0	1	T	0	4			Includes Debris
243	U	0	7	3		K	S	0	1	T	0	4			Includes Debris
244	U	0	7	4		K	S	0	1	T	0	4			Includes Debris
245	U	0	7	5		K	S	0	1	T	0	4			Includes Debris
246	U	0	7	6		K	S	0	1	T	0	4			Includes Debris
247	U	0	7	7		K	S	0	1	T	0	4			Includes Debris
248	U	0	7	8		K	S	0	1	T	0	4			Includes Debris
249	U	0	7	9		K	S	0	1	T	0	4			Includes Debris
250	U	0	8	0		K	S	0	1	T	0	4			Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

251	U	0	8	1		K	S	0	1	T	0	4			Includes Debris
252	U	0	8	2		K	S	0	1	T	0	4			Includes Debris
253	U	0	8	3		K	S	0	1	T	0	4			Includes Debris
254	U	0	8	4		K	S	0	1	T	0	4			Includes Debris
255	U	0	8	5		K	S	0	1	T	0	4			Includes Debris
256	U	0	8	6		K	S	0	1	T	0	4			Includes Debris
257	U	0	8	7		K	S	0	1	T	0	4			Includes Debris
258	U	0	8	8		K	S	0	1	T	0	4			Includes Debris
259	U	0	8	9		K	S	0	1	T	0	4			Includes Debris
260	U	0	9	0		K	S	0	1	T	0	4			Includes Debris
261	U	0	9	1		K	S	0	1	T	0	4			Includes Debris
262	U	0	9	2		K	S	0	1	T	0	4			Includes Debris
263	U	0	9	3		K	S	0	1	T	0	4			Includes Debris
264	U	0	9	4		K	S	0	1	T	0	4			Includes Debris
265	U	0	9	5		K	S	0	1	T	0	4			Includes Debris
266	U	0	9	6		K	S	0	1	T	0	4			Includes Debris
267	U	0	9	7		K	S	0	1	T	0	4			Includes Debris
268	U	0	9	8		K	S	0	1	T	0	4			Includes Debris
269	U	0	9	9		K	S	0	1	T	0	4			Includes Debris
270	U	1	0	1		K	S	0	1	T	0	4			Includes Debris
271	U	1	0	2		K	S	0	1	T	0	4			Includes Debris
272	U	1	0	3		K	S	0	1	T	0	4			Includes Debris
273	U	1	0	5		K	S	0	1	T	0	4			Includes Debris
274	U	1	0	6		K	S	0	1	T	0	4			Includes Debris
275	U	1	0	7		K	S	0	1	T	0	4			Includes Debris
276	U	1	0	8		K	S	0	1	T	0	4			Includes Debris
277	U	1	0	9		K	S	0	1	T	0	4			Includes Debris
278	U	1	1	0		K	S	0	1	T	0	4			Includes Debris
279	U	1	1	1		K	S	0	1	T	0	4			Includes Debris
280	U	1	1	2		K	S	0	1	T	0	4			Includes Debris
281	U	1	1	3		K	S	0	1	T	0	4			Includes Debris
282	U	1	1	4		K	S	0	1	T	0	4			Includes Debris
283	U	1	1	5		K	S	0	1	T	0	4			Includes Debris
284	U	1	1	6		K	S	0	1	T	0	4			Includes Debris
285	U	1	1	7		K	S	0	1	T	0	4			Includes Debris
286	U	1	1	8		K	S	0	1	T	0	4			Includes Debris
287	U	1	1	9		K	S	0	1	T	0	4			Includes Debris
288	U	1	2	0		K	S	0	1	T	0	4			Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

289	U	1	2	1		K	S	0	1	T	0	4			Includes Debris
290	U	1	2	2		K	S	0	1	T	0	4			Includes Debris
291	U	1	2	3		K	S	0	1	T	0	4			Includes Debris
292	U	1	2	4		K	S	0	1	T	0	4			Includes Debris
293	U	1	2	5		K	S	0	1	T	0	4			Includes Debris
294	U	1	2	6		K	S	0	1	T	0	4			Includes Debris
295	U	1	2	7		K	S	0	1	T	0	4			Includes Debris
296	U	1	2	8		K	S	0	1	T	0	4			Includes Debris
297	U	1	2	9		K	S	0	1	T	0	4			Includes Debris
298	U	1	3	0		K	S	0	1	T	0	4			Includes Debris
299	U	1	3	1		K	S	0	1	T	0	4			Includes Debris
300	U	1	3	2		K	S	0	1	T	0	4			Includes Debris
301	U	1	3	3		K	S	0	1	T	0	4			Includes Debris
302	U	1	3	4		K	S	0	1	T	0	4			Includes Debris
303	U	1	3	5		K	S	0	1	T	0	4			Includes Debris
304	U	1	3	6		K	S	0	1	T	0	4			Includes Debris
305	U	1	3	7		K	S	0	1	T	0	4			Includes Debris
306	U	1	3	8		K	S	0	1	T	0	4			Includes Debris
307	U	1	4	0		K	S	0	1	T	0	4			Includes Debris
308	U	1	4	1		K	S	0	1	T	0	4			Includes Debris
309	U	1	4	2		K	S	0	1	T	0	4			Includes Debris
310	U	1	4	3		K	S	0	1	T	0	4			Includes Debris
311	U	1	4	4		K	S	0	1	T	0	4			Includes Debris
312	U	1	4	5		K	S	0	1	T	0	4			Includes Debris
313	U	1	4	6		K	S	0	1	T	0	4			Includes Debris
314	U	1	4	7		K	S	0	1	T	0	4			Includes Debris
315	U	1	4	8		K	S	0	1	T	0	4			Includes Debris
316	U	1	4	9		K	S	0	1	T	0	4			Includes Debris
317	U	1	5	0		K	S	0	1	T	0	4			Includes Debris
318	U	1	5	1		K	S	0	1	T	0	4			Includes Debris
319	U	1	5	2		K	S	0	1	T	0	4			Includes Debris
320	U	1	5	3		K	S	0	1	T	0	4			Includes Debris
321	U	1	5	4		K	S	0	1	T	0	4			Includes Debris
322	U	1	5	5		K	S	0	1	T	0	4			Includes Debris
323	U	1	5	6		K	S	0	1	T	0	4			Includes Debris
324	U	1	5	7		K	S	0	1	T	0	4			Includes Debris
325	U	1	5	8		K	S	0	1	T	0	4			Includes Debris
326	U	1	5	9		K	S	0	1	T	0	4			Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

327	U	1	6	0		K	S	0	1	T	0	4				Includes Debris
328	U	1	6	1		K	S	0	1	T	0	4				Includes Debris
329	U	1	6	2		K	S	0	1	T	0	4				Includes Debris
330	U	1	6	3		K	S	0	1	T	0	4				Includes Debris
331	U	1	6	4		K	S	0	1	T	0	4				Includes Debris
332	U	1	6	5		K	S	0	1	T	0	4				Includes Debris
333	U	1	6	6		K	S	0	1	T	0	4				Includes Debris
334	U	1	6	7		K	S	0	1	T	0	4				Includes Debris
335	U	1	6	8		K	S	0	1	T	0	4				Includes Debris
336	U	1	6	9		K	S	0	1	T	0	4				Includes Debris
337	U	1	7	0		K	S	0	1	T	0	4				Includes Debris
338	U	1	7	1		K	S	0	1	T	0	4				Includes Debris
339	U	1	7	2		K	S	0	1	T	0	4				Includes Debris
340	U	1	7	3		K	S	0	1	T	0	4				Includes Debris
341	U	1	7	4		K	S	0	1	T	0	4				Includes Debris
342	U	1	7	6		K	S	0	1	T	0	4				Includes Debris
343	U	1	7	7		K	S	0	1	T	0	4				Includes Debris
344	U	1	7	8		K	S	0	1	T	0	4				Includes Debris
345	U	1	7	9		K	S	0	1	T	0	4				Includes Debris
346	U	1	8	0		K	S	0	1	T	0	4				Includes Debris
347	U	1	8	1		K	S	0	1	T	0	4				Includes Debris
348	U	1	8	2		K	S	0	1	T	0	4				Includes Debris
349	U	1	8	3		K	S	0	1	T	0	4				Includes Debris
350	U	1	8	4		K	S	0	1	T	0	4				Includes Debris
351	U	1	8	5		K	S	0	1	T	0	4				Includes Debris
352	U	1	8	6		K	S	0	1	T	0	4				Includes Debris
353	U	1	8	7		K	S	0	1	T	0	4				Includes Debris
354	U	1	8	8		K	S	0	1	T	0	4				Includes Debris
355	U	1	8	9		K	S	0	1	T	0	4				Includes Debris
356	U	1	9	0		K	S	0	1	T	0	4				Includes Debris
357	U	1	9	1		K	S	0	1	T	0	4				Includes Debris
358	U	1	9	2		K	S	0	1	T	0	4				Includes Debris
359	U	1	9	3		K	S	0	1	T	0	4				Includes Debris
360	U	1	9	4		K	S	0	1	T	0	4				Includes Debris
361	U	1	9	6		K	S	0	1	T	0	4				Includes Debris
362	U	1	9	7		K	S	0	1	T	0	4				Includes Debris
363	U	2	0	0		K	S	0	1	T	0	4				Includes Debris
364	U	2	0	1		K	S	0	1	T	0	4				Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

365	U	2	0	3		K	S	0	1	T	0	4				Includes Debris
366	U	2	0	4		K	S	0	1	T	0	4				Includes Debris
367	U	2	0	5		K	S	0	1	T	0	4				Includes Debris
368	U	2	0	6		K	S	0	1	T	0	4				Includes Debris
369	U	2	0	7		K	S	0	1	T	0	4				Includes Debris
370	U	2	0	8		K	S	0	1	T	0	4				Includes Debris
371	U	2	0	9		K	S	0	1	T	0	4				Includes Debris
372	U	2	1	0		K	S	0	1	T	0	4				Includes Debris
373	U	2	1	1		K	S	0	1	T	0	4				Includes Debris
374	U	2	1	3		K	S	0	1	T	0	4				Includes Debris
375	U	2	1	4		K	S	0	1	T	0	4				Includes Debris
376	U	2	1	5		K	S	0	1	T	0	4				Includes Debris
377	U	2	1	6		K	S	0	1	T	0	4				Includes Debris
378	U	2	1	7		K	S	0	1	T	0	4				Includes Debris
379	U	2	1	8		K	S	0	1	T	0	4				Includes Debris
380	U	2	1	9		K	S	0	1	T	0	4				Includes Debris
381	U	2	2	0		K	S	0	1	T	0	4				Includes Debris
382	U	2	2	1		K	S	0	1	T	0	4				Includes Debris
383	U	2	2	2		K	S	0	1	T	0	4				Includes Debris
384	U	2	2	3		K	S	0	1	T	0	4				Includes Debris
385	U	2	2	5		K	S	0	1	T	0	4				Includes Debris
386	U	2	2	6		K	S	0	1	T	0	4				Includes Debris
387	U	2	2	7		K	S	0	1	T	0	4				Includes Debris
388	U	2	2	8		K	S	0	1	T	0	4				Includes Debris
389	U	2	3	4		K	S	0	1	T	0	4				Includes Debris
390	U	2	3	5		K	S	0	1	T	0	4				Includes Debris
391	U	2	3	6		K	S	0	1	T	0	4				Includes Debris
392	U	2	3	7		K	S	0	1	T	0	4				Includes Debris
393	U	2	3	8		K	S	0	1	T	0	4				Includes Debris
394	U	2	3	9		K	S	0	1	T	0	4				Includes Debris
395	U	2	4	0		K	S	0	1	T	0	4				Includes Debris
396	U	2	4	3		K	S	0	1	T	0	4				Includes Debris
397	U	2	4	4		K	S	0	1	T	0	4				Includes Debris
398	U	2	4	6		K	S	0	1	T	0	4				Includes Debris
399	U	2	4	7		K	S	0	1	T	0	4				Includes Debris
400	U	2	4	8		K	S	0	1	T	0	4				Includes Debris
401	U	2	4	9		K	S	0	1	T	0	4				Includes Debris

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

402	U	2	7	1		K	S	0	1	T	0	4			Includes Debris
403	U	2	7	8		K	S	0	1	T	0	4			Includes Debris
404	U	2	7	9		K	S	0	1	T	0	4			Includes Debris
405	U	2	8	0		K	S	0	1	T	0	4			Includes Debris
406	U	3	2	8		K	S	0	1	T	0	4			Includes Debris
407	U	3	5	3		K	S	0	1	T	0	4			Includes Debris
408	U	3	5	9		K	S	0	1	T	0	4			Includes Debris
409	U	3	6	4		K	S	0	1	T	0	4			Includes Debris
410	U	3	6	7		K	S	0	1	T	0	4			Includes Debris
411	U	3	7	2		K	S	0	1	T	0	4			Includes Debris
412	U	3	7	3		K	S	0	1	T	0	4			Includes Debris
413	U	3	8	7		K	S	0	1	T	0	4			Includes Debris
414	U	3	8	9		K	S	0	1	T	0	4			Includes Debris
415	U	3	9	4		K	S	0	1	T	0	4			Includes Debris
416	U	3	9	5		K	S	0	1	T	0	4			Includes Debris
417	U	4	0	4		K	S	0	1	T	0	4			Includes Debris
418	U	4	0	9		K	S	0	1	T	0	4			Includes Debris
419	U	4	1	0		K	S	0	1	T	0	4			Includes Debris
420	U	4	1	1		K	S	0	1	T	0	4			Includes Debris
421	W	P	C	B		K	S	0	1	T	0	4			Includes Debris
422	W	P	0	1		K	S	0	1	T	0	4			Includes Debris
423	W	P	0	2		K	S	0	1	T	0	4			Includes Debris
424	W	P	0	3		K	S	0	1	T	0	4			Includes Debris
425	W	T	0	1		K	S	0	1	T	0	4			Includes Debris
426	W	T	0	2		K	S	0	1	T	0	4			Includes Debris
427	W	S	C	2		K	S	0	1	T	0	4			Includes Debris
428	D	0	0	1	10,000	K	S	0	2	T	0	1			
429	D	0	0	2		K	S	0	2	T	0	1			
430	D	0	0	3		K	S	0	2	T	0	1			
431	D	0	0	4		K	S	0	2	T	0	1			
432	D	0	0	5		K	S	0	2	T	0	1			
433	D	0	0	6		K	S	0	2	T	0	1			
434	D	0	0	7		K	S	0	2	T	0	1			
435	D	0	0	8		K	S	0	2	T	0	1			
436	D	0	0	9		K	S	0	2	T	0	1			
437	D	0	1	0		K	S	0	2	T	0	1			
438	D	0	1	1		K	S	0	2	T	0	1			
439	D	0	1	8		K	S	0	2	T	0	1			

EPA/State ID Number	W	A	7	8	9	0	0	0	8	9	6	7

Continuation of Section XIV. Description of Dangerous Waste

440	D	0	1	9		K	S	0	2	T	0	1				
441	D	0	2	2		K	S	0	2	T	0	1				
442	D	0	2	8		K	S	0	2	T	0	1				
443	D	0	2	9		K	S	0	2	T	0	1				
444	D	0	3	0		K	S	0	2	T	0	1				
445	D	0	3	3		K	S	0	2	T	0	1				
446	D	0	3	4		K	S	0	2	T	0	1				
447	D	0	3	5		K	S	0	2	T	0	1				
448	D	0	3	6		K	S	0	2	T	0	1				
449	D	0	3	8		K	S	0	2	T	0	1				
450	D	0	3	9		K	S	0	2	T	0	1				
451	D	0	4	0		K	S	0	2	T	0	1				
452	D	0	4	1		K	S	0	2	T	0	1				
453	D	0	4	3		K	S	0	2	T	0	1				
454	F	0	0	1		K	S	0	2	T	0	1				
455	F	0	0	2		K	S	0	2	T	0	1				
456	F	0	0	3		K	S	0	2	T	0	1				
457	F	0	0	4		K	S	0	2	T	0	1				
458	F	0	0	5		K	S	0	2	T	0	1				
459	F	0	3	9		K	S	0	2	T	0	1				
460	W	T	0	1		K	S	0	2	T	0	1				
461	W	T	0	2		K	S	0	2	T	0	1				
462	W	P	0	1		K	S	0	2	T	0	1				
463	W	P	0	2		K	S	0	2	T	0	1				
464	W	S	C	2		K	S	0	2	T	0	1				
465																
466																
467																

XV. Map

Attach to this application a topographic map of the area extending to at least one (1) mile beyond property boundaries. The map must show the outline of the facility; the location of each of its existing and proposed intake and discharge structures; each of its dangerous waste treatment, storage, recycling, or disposal units; and each well where fluids are injected underground. Include all springs, rivers, and other surface water bodies in this map area, plus drinking water wells listed in public records or otherwise known to the applicant within ¼ mile of the facility property boundary. The instructions provide additional information on meeting these requirements.

Topographic map is located on the last page.

XVI. Facility Drawing

All existing facilities must include a scale drawing of the facility (refer to Instructions for more detail).

XVII. Photographs

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment, recycling, and disposal areas; and sites of future storage, treatment, recycling, or disposal areas (refer to Instructions for more detail).

XVIII. Certifications

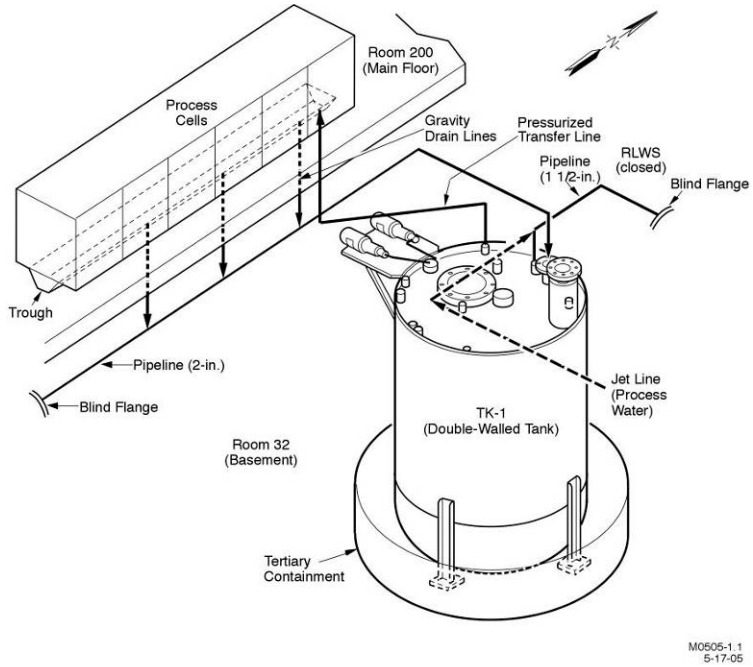
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Operator **Name and Official Title**	**Signature**	**Date Signed**
Doug S. Shoop, Acting Manager U.S. Department of Energy Richland Operations Office		
Co-Operator **Name and Official Title**	**Signature**	**Date Signed**
Cameron M. Andersen, Director Environment, Health, Safety and Security Pacific Northwest National Laboratory		
Co-Operator – Address and Telephone Number* P.O. Box 999 Richland, WA 99352 (509) 372-6503		
Facility-Property Owner **Name and Official Title**	**Signature**	**Date Signed**
Doug S. Shoop, Acting Manager U.S. Department of Energy Richland Operations Office		

Comments

325 Hazardous Waste Treatment Units

Shielded Analytical Laboratory Tank and Ancillary Piping



Room 528

96010398-22CN
(Photo Taken 1996)

325 Hazardous Waste Treatment Units

Room 528

96010398-20CN
(Photo Taken 1996)

Room 520

96010398-17CN
(Photo Taken 1996)

325 Hazardous Waste Treatment Units

Room 201

96010398-16CN
(Photo Taken 1996)

Room 201

96010398-7CN
(Photo Taken 1996)

Shielded Analytical Laboratory

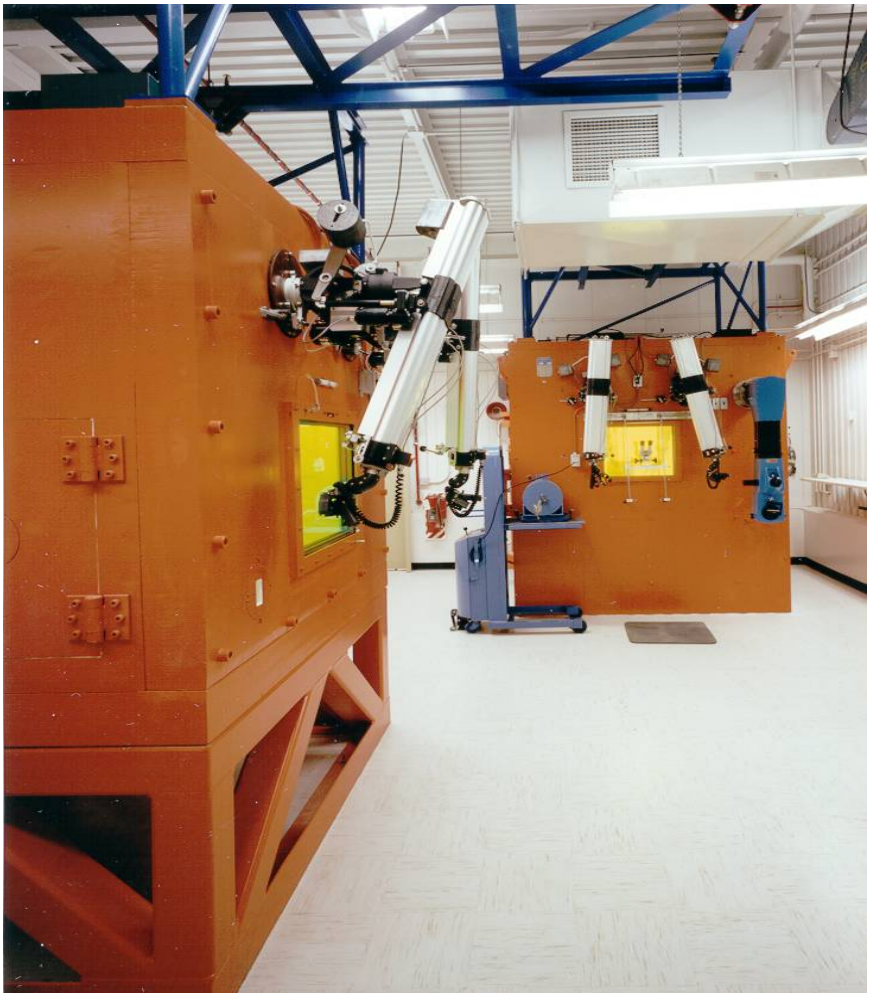
Room 200

96010398-1CN
(Photo Taken 1996)

SAL Tank (Room 32)

96010398-3CN
(Photo Taken 1996)

Shielded Analytical Laboratory



Room 203

7908247-1CN
(Photo Taken 1979)

Cask Handling Area (Room 603/604A)

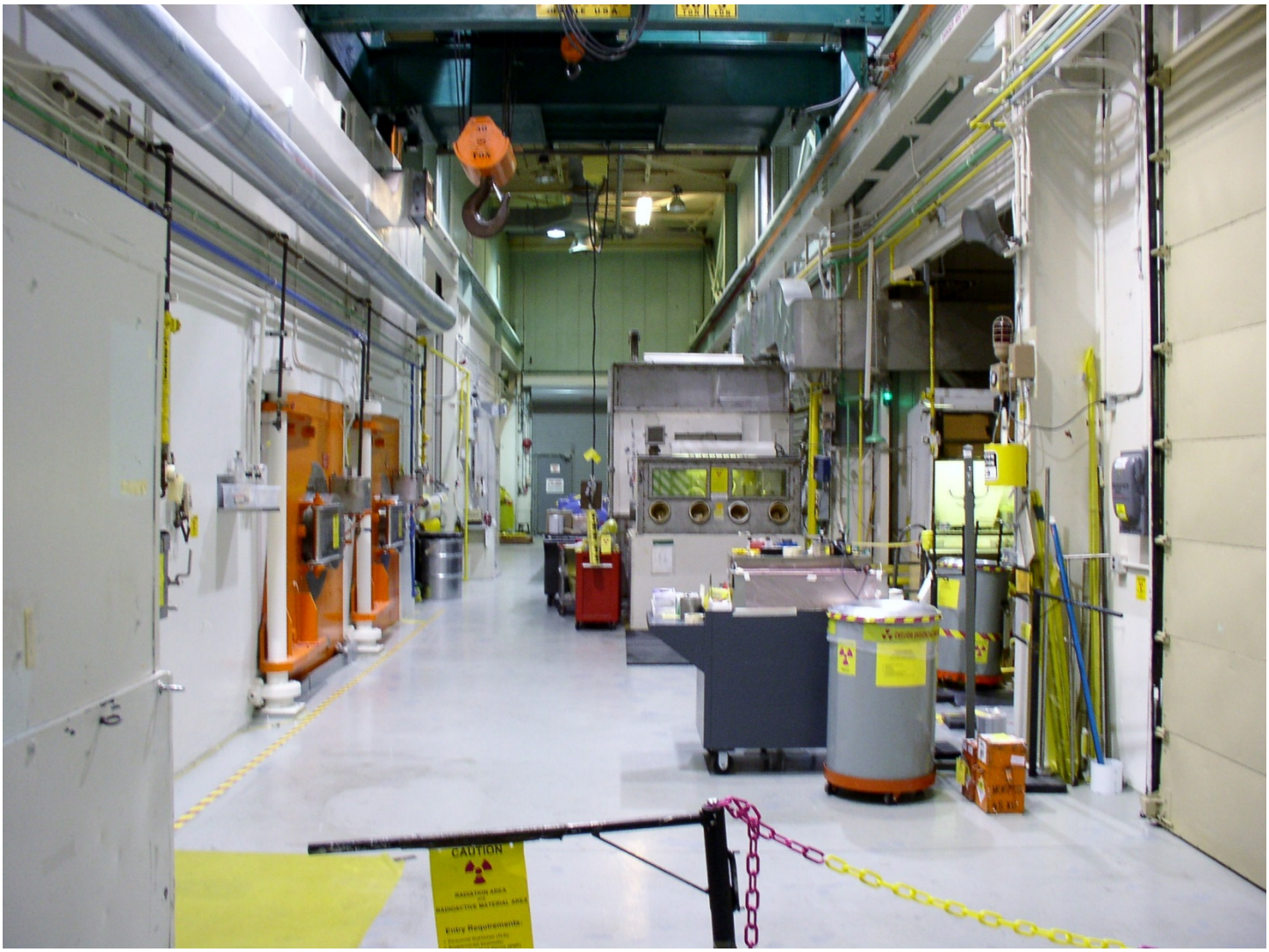


Photo taken 2014

Truck Lock (Room 610)

Photo taken 2014

3714 Pad

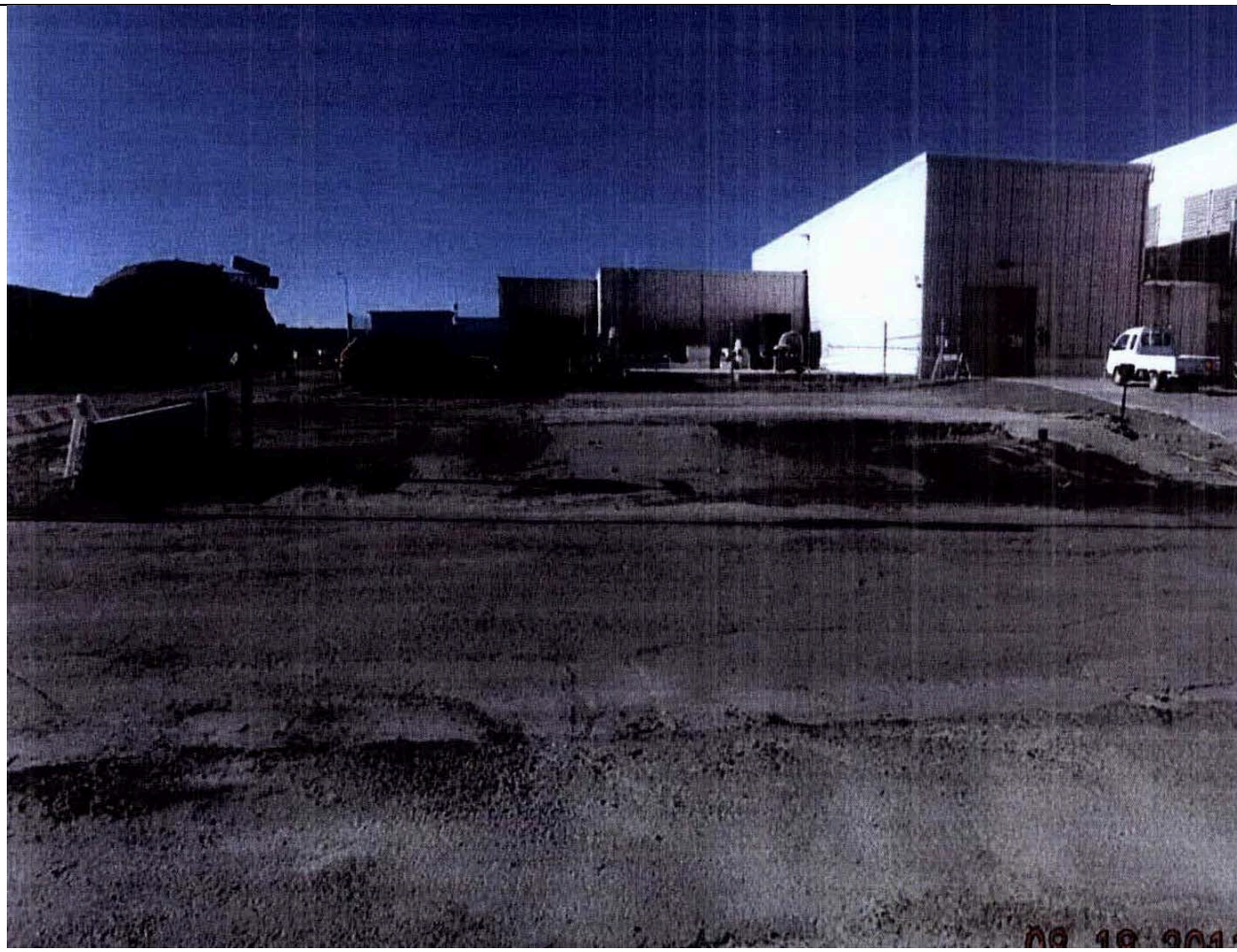
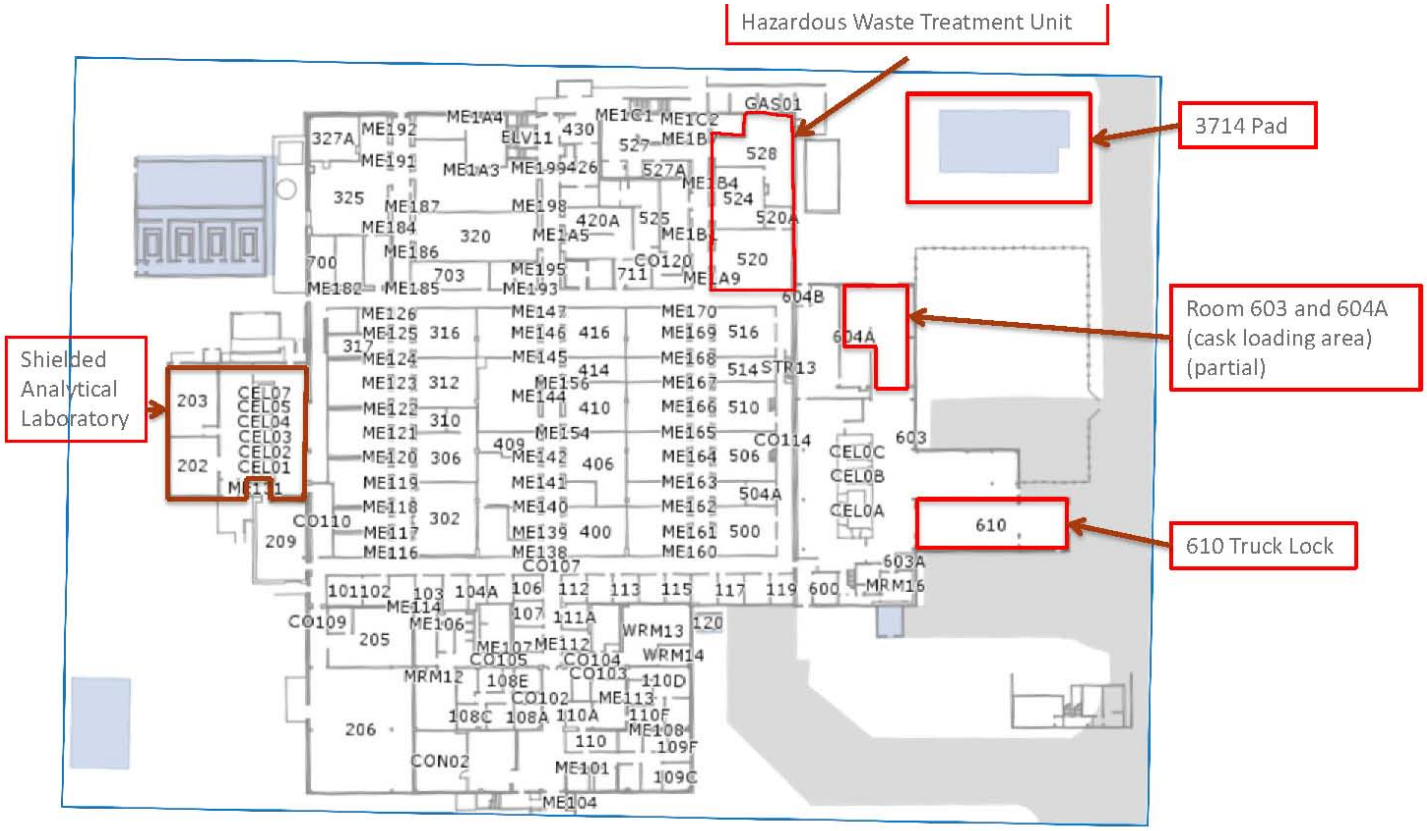


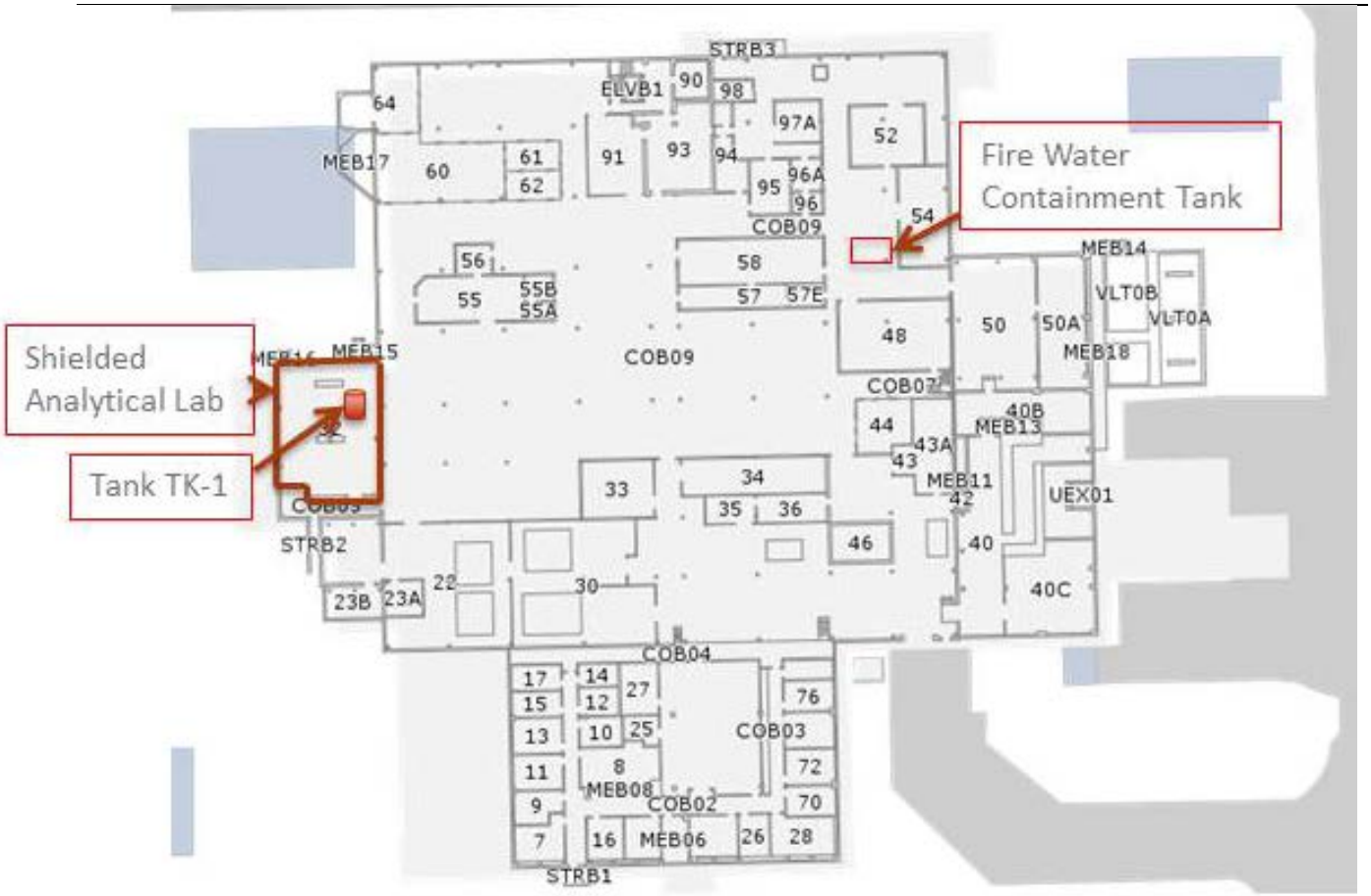
Photo taken 2011

325 Hazardous Waste Treatment Units

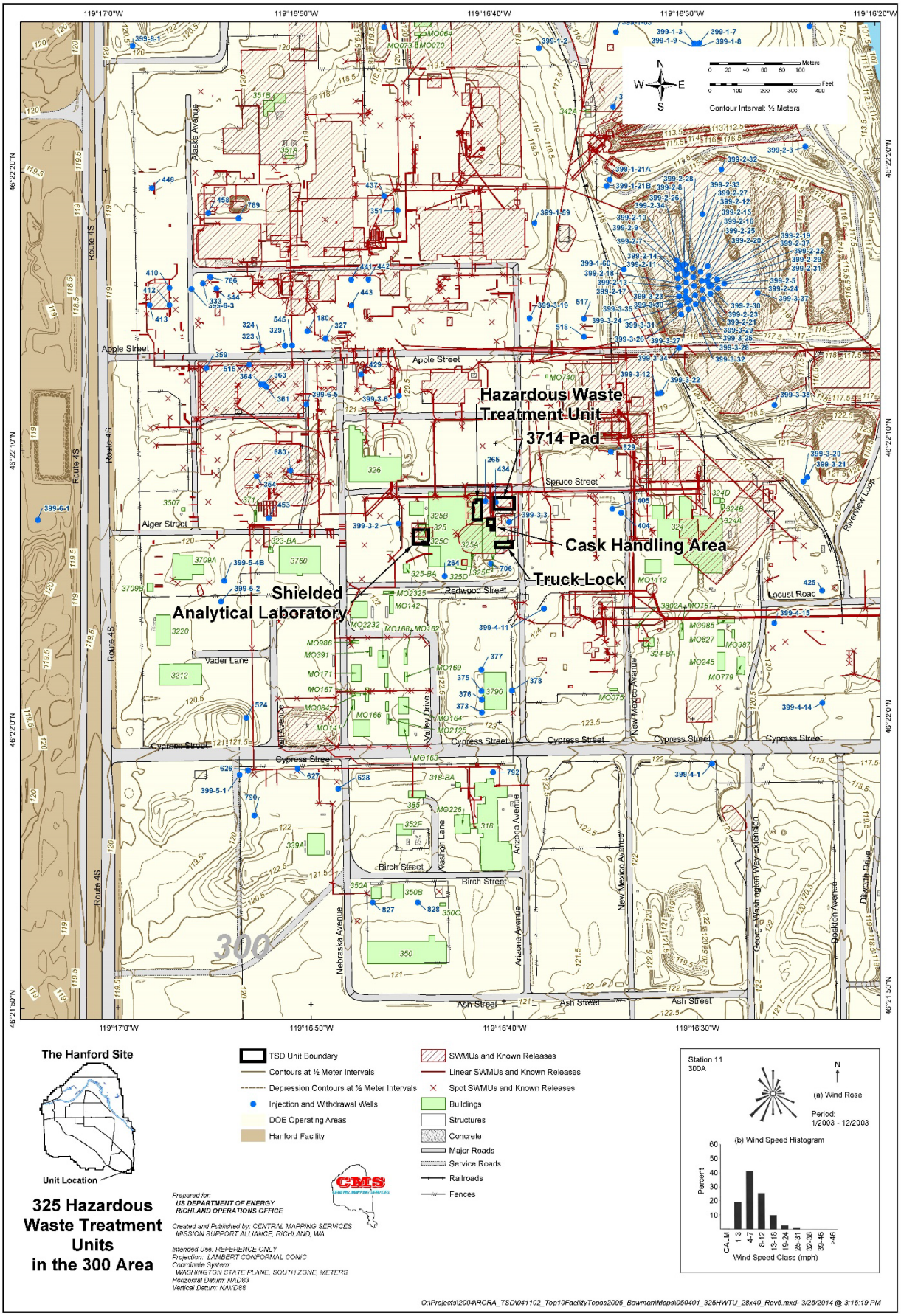


Location of the Hazardous Waste Treatment Units: 325 Building First Floor

325 Hazardous Waste Treatment Units



Location of the Hazardous Waste Treatment Units: 325 Building Basement


Hazardous Waste Treatment Unit
3714 Pad
Cask Handling Area
Truck Lock
Shielded Analytical Laboratory
300
Contour Interval: ½ Meters
The Hanford Site
Unit Location
325 Hazardous Waste Treatment Units in the 300 Area
TSD Unit Boundary
Contours at ½ Meter Intervals
Depression Contours at ½ Meter Intervals
Injection and Withdrawal Wells
DOE Operating Areas
Hanford Facility
SWMUs and Known Releases
Linear SWMUs and Known Releases
Spot SWMUs and Known Releases
Buildings
Structures
Concrete
Major Roads
Service Roads
Railroads
Fences
Station 11
300A
(a) Wind Rose
Period:
1/2003 - 12/2003
(b) Wind Speed Histogram
Percent
Wind Speed Class (mph)
Prepared for
US DEPARTMENT OF ENERGY
RICHLAND OPERATIONS OFFICE
Created and Published by: CENTRAL MAPPING SERVICES
MISSION SUPPORT ALLIANCE, RICHLAND, WA
Intended Use: REFERENCE ONLY
Projection: LAMBERT CONFORMAL CONIC
Coordinate System: WASHINGTON STATE PLANE, SOUTH ZONE, METERS
Horizontal Datum: NAD83
Vertical Datum: NAVD88
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ADDENDUM B
WASTE ANALYSIS PLAN

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ADDENDUM B
WASTE ANALYSIS PLAN

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EXECUTIVE SUMMARY

The 325 Hazardous Waste Treatment Units (325 HWTUs) collect, consolidate, and prepare dangerous waste for shipment. Waste is primarily received from onsite generators and offsite Pacific Northwest National Laboratory (PNNL) facilities. The purpose of this Waste Analysis Plan (WAP) is to document the process to confirm PNNL's knowledge about dangerous waste before storing waste at the 325 HWTUs, as required in WAC 173-303-300. The purpose of waste analysis at permitted facilities is to assure that waste can be stored properly.

Waste analysis at permitted facilities consists of obtaining and reviewing a *detailed chemical, physical, and/or biological analysis* of a waste prior to storage. This detailed analysis can consist of *knowledge* of the wastes as defined in WAC 173-303-040, typically provided by the generator, data obtained by direct testing, or a combination of both. When the analysis provided by the generator relies upon knowledge, that knowledge must be documented and confirmed. The waste analysis performed by PNNL waste management staff is used to determine the acceptability of the waste for storage at the 325 HWTUs.

This WAP describes the process for inspection and, if necessary, analysis of wastes received at the 325 HWTUs to confirm that the waste matches the identity of the waste on the accompanying shipping documentation. The WAP also contains a description of the sampling methodologies, analytical techniques, and processes that are undertaken for confirmatory sampling and analysis of dangerous waste managed in the 325 HWTUs. Finally, the WAP describes the records that are maintained in order to meet requirements specified in the Hanford Facility Dangerous Waste Permit.

1 **DEFINITIONS**

Term	Definition
Analysis	Obtaining and reviewing information provided by the waste generator and/or provided by other means to confirm the information provided concerning a waste stream.
Compatible	As applied to suitability of containers, tanks or sampling equipment, *compatible* means the waste will not react with or otherwise damage the container, tank, or sampling equipment such that the ability of the equipment to contain the waste is not impaired. For determination of compatibility for storage, refer to definition of *incompatible waste*.
Database	The PNNL waste management database (the Integrated Waste Management System) containing profile, confirmation, storage, and shipment information on each container of waste.
Fingerprint Analysis	Testing of significant parameters expected from a waste (as documented in its approved profile) performed after physical transfer of the waste to the 325 HWTUs. Fingerprint analysis is intended to verify that the waste transferred to the 325 HWTUs matches the profile provided. Fingerprinting is usually performed by visual examination of the waste and/or use of readily available testing methods such as test kits.
Incompatible Waste	Materials/wastes unsuitable for placement in a particular device or facility because it may corrode or decay the containment materials, or is unsuitable for mixing with another waste or material because the mixture might produce heat or pressure, fire or explosion, violent reaction, toxic dusts, fumes, mists, or gases, or flammable fumes or gases. Refer to Table 1.
Inspection	Viewing of the contents of the container, container markings and labeling, number of containers, and/or the container itself as a means of confirming the identity of the waste
Knowledge	Sufficient information about a waste to substitute reliably for direct testing of the waste. To be sufficient and reliable, the *knowledge* used must provide information necessary to manage the waste in accordance with the requirements of this chapter. [WAC 173-303-040] Note: *Knowledge* may be used by itself or in combination with testing to designate as waste pursuant to WAC 173-303-070(3)(c), or to obtain a detailed chemical, physical, and/or biological analysis of a waste as required in WAC 173-303-300(2).
Profile	A *detailed physical, chemical, and/or biological analysis of a dangerous waste* provided by the waste generator in order to allow the 325 HWTUs staff to perform waste analysis. The Chemical Disposal/Recycle Request (CDRR) and/or Radioactive Waste Disposal Request (RWDR) at PNNL currently serve as the waste profile. A sample CDRR is shown in Table B.3.
Testing	Performance of a procedure that yields a quantitative or qualitative evaluation of the type and/or quantity of materials present. Sometimes referred to as *analysis* or *laboratory analysis*, but for purposes of this procedure, the term *testing* is used to distinguish it from waste analysis (refer to definition of *analysis* above).
Verification	Determination that the waste in question is that waste described on the approved profile. Verification may include inspection and/or fingerprint analysis.
Waste Stream	Wastes that are physically or chemically different from each other; wastes that are generated from different types of processes; or wastes that are of the same type, but generated at different points in the process or at different process locations.

B. WASTE ANALYSIS PLAN

B.1 Unit Description

The 325 HWTUs are dangerous waste treatment and storage units owned and operated by DOE and co-operated by Pacific Northwest National Laboratory (PNNL). The 325 HWTUs are used for the collection, consolidation, packaging, storage, treatment, and preparation for transport and disposal of dangerous waste, universal waste, and recyclables, including mixed waste. It is an integral part of the PNNL waste management system.

B.1.1 Description of Unit Processes and Activities

The 325 HWTUs are units within the 325 Building, located in the 300 Area on the Hanford Facility (refer to Addendum A for location).

The 325 Building includes the following: (1) a central portion (completed in 1953) that consists of three floors (basement, ground, and second) containing general-purpose laboratories, provided with special ventilation and work enclosures; (2) a south (front) wing containing office space, locker rooms, and a lunch room; and (3) east and west wings containing shielded enclosures with remote manipulators. The Shielded Analytical Laboratory (SAL) is located in Rooms 32, 200, 201, 202, and 203. The HWTU is located in Rooms 520, 524 and 528. The Cask Handling Area is located in Rooms 603 and 604A in the east wing. The Truck Lock is Room 610 of the east wing. The 3714 Pad is a concrete pad and surrounding soil located just northeast of the 325 Building that contains the foundation for the former 3714 Building, which was demolished in 2011.

The 325 HWTUs store and treat dangerous waste generated by Hanford Facility programs (primarily from research activities in the 325 Building and other PNNL facilities) and potentially from other onsite/offsite laboratories. Storage in containers occurs in each unit, and bench- or small-scale treatment of dangerous waste in containers occurs in the HWTU, the Cask Handling Area, and the SAL. Larger-scale treatment in containers is limited to macroencapsulation, solidification or stabilization and takes place in the Cask Handling Area, the Truck Lock, or at the 3714 Pad. At the SAL, dangerous waste liquid is stored in a tank in Room 32. As described in further detail in Addendum C, permit conditions applicable to container management in the 325 HWTUs are established in accordance with WAC 173-303-630. Similarly, permit conditions applicable to the SAL tank have been established in accordance with WAC 173-303-640.

The fire water-collection tank, which serves rooms 520 and 528 of the HWTU, is located beneath Room 520 in the basement of the 325 Building. The rectangular tank measures 1.65 meters by 2.25 meters by 1.92 meters, and has a 22,710-liter capacity. The sides and floor of the tank are constructed of epoxy-coated carbon-steel plate. The steel sides and floor provide support for the chemical-resistant polypropylene liner. The tank is secured to the concrete floor of the 325 Building with 1.3-centimeter bolts at 1.82-meter intervals.

B.1.1.1 How Waste is Accepted, Moved, Processed, and Managed

PNNL's waste management organization maintains a waste management database to support the identification and tracking of waste from profiling through final disposition, and maintain the information required by permit conditions established in accordance with WAC 173-303-380. This section contains information on waste acceptance and analysis. Waste movement, processing, and management are discussed in Addendum C.

B.1.1.1.1 Narrative Process Descriptions

Wastes to be managed at the 325 HWTUs are generated by PNNL's research laboratory and support activities, usually in small quantities. These wastes are managed in accordance with generator requirements prior to being submitted for transfer to the 325 HWTUs during the accumulation period.

B.1.1.1.2 Narrative Waste Characterization

Waste streams accepted for storage at the 325 HWTUs can be categorized as follows:

Listed Waste from Specific and Nonspecific Sources

Certain wastes from specific and nonspecific sources identified in WAC 173-303-9904 (designated with 'F' waste codes) are accepted at the 325 HWTUs for storage and subsequent shipment. Addendum A identifies the dangerous waste numbers and estimated annual management quantities for each. These estimated annual management quantities are the maximum allowable amounts for storage or treatment in the 325 HWTUs.

Spent solvents may be halogenated or non-halogenated. Spent degreasing solvents (F001) as well as spent halogenated solvents (F002) are generated primarily in research activities, with a few generated by maintenance activities. Spent non-halogenated solvents (F003, F004, and F005) are also primarily generated by research activities, with a few generated by maintenance activities. WPCB state source waste (PCB electrical equipment waste) has been generated in limited amounts in the past and could be stored at the 325 HWTUs if future generating activities occur.

Discarded Commercial Chemical Products

Discarded commercial chemical products are those described in WAC 173-303-081. Addendum A identifies all of the discarded commercial chemical products listed in WAC 173-303-9903, as research activities have the potential to generate any of these wastes. Estimated annual management quantities are given based on prior experience.

These wastes ('P' and 'U' waste codes) are typically received at the 325 HWTUs in the manufacturer's original container. These containers are usually 4 liters or less in volume, and are glass or polyethylene jars or bottles, or metal cans. Such wastes may be discarded at the end of a project, as part of a lab cleanout, or after the passage of an expiration date, that renders the chemical non-useable due to quality assurance requirements of Laboratory projects.

Characteristic Waste

Some wastes from research activities and maintenance, although not listed pursuant to WAC 173-303-081 or -082, exhibit one or more characteristics of dangerous waste described in WAC 173-303-090. Although wastes exhibiting any of these characteristics are routinely managed at the 325 HWTUs, the most prevalent waste types are ignitable wastes (D001), corrosive wastes (D002), solid corrosives (WSC2), and wastes containing chromium (D007) and/or lead (D008). All characteristic waste codes and estimated annual management quantities are given in Addendum A. These estimated annual management quantities are the maximum allowable amounts for storage or treatment in the 325 HWTUs.

Criteria Waste (Toxic and/or Persistent)

Wastes from research or maintenance activities that is not a listed waste and does not exhibit a characteristic of dangerous waste may designate as state dangerous waste criteria wastes, pursuant to WAC 173-303-100. Wastes exhibiting the criteria of toxicity (WT02) are PNNL's most prevalent waste type. All criteria waste codes and their estimated annual management quantities are given in Addendum A.

B.1.1.1.3 Waste Acceptance Process

Waste Submittal

The waste analysis process for the 325 HWTUs begins when the generating unit completes and transmits a profile to the waste management organization for the waste stream. This profile is currently submitted electronically into the waste management database by field-deployed waste management staff. The profile provides the *detailed physical, chemical, and/or biological analysis* of each waste submitted. Information required includes a physical description of the waste, accounting for 100% of the contents, and identity and concentration of the hazardous constituents known or reasonably expected to be in the

waste; location and container information; identity of the waste generator; and the hazards of the waste. Profile information includes process knowledge and any available testing data on the waste.

Profile information must meet the following four distinct information needs for management of dangerous waste at the 325 HWTUs.

- Verify that wastes are properly designated in accordance with WAC 173-303 and whether those wastes are DW or EHW.
- Identify or verify the applicable treatment standards under WAC 173-303-140 and whether the waste complies with applicable treatment standards under WAC 173-303-140.
- Identify and verify specific characteristics of waste in solid, liquid, or solution form.
- Determine how to safely handle, transport, analyze, store, and dispose of the waste.

Evaluation and Acceptance

After a profile is submitted, waste management staff first performs a consistency check of profile information. For instance, profile data is checked to confirm that percentages of waste constituents listed add to 100%, physical state is consistent with chemical description, and that chemicals are compatible with container type. The purpose of this check is to determine if any process knowledge provided constitutes *knowledge* for purposes of the Dangerous Waste Regulations, i.e. is adequate to substitute for testing information in order to quantify constituents and characteristics, and enable proper management of the waste in accordance with the Dangerous Waste Regulations. Any information discrepancies are noted and resolved with the profile submitter. Discrepancies that cannot be resolved result in rejection of the waste profile.

Once the consistency check is complete, waste designation information is verified. Any constituent regulated under other regulations is also checked (e.g. PCBs, asbestos) and DOT hazard class and packing group information is determined based on the hazard description given in DOT regulations. Applicable LDR treatment standards are identified and underlying hazardous constituents (UHC) are identified, as appropriate. The verified waste codes, other identification, LDR treatment standard and UHC information, and DOT hazard class and packing group information associated with the waste are confirmed for correct entry in the waste management database.

Once designation verification is complete, the waste management staff determines if a waste is unacceptable for storage (e.g. waste code not listed in Addendum A), and storage capacity limits are checked. If the waste is confirmed to meet the storage type and quantity limitations of Addenda A, B, and C, it meets the waste acceptance criteria, and is acceptable for storage. The approved waste is assigned a unique identification number, cell location, and hazard classification. The profile is noted as *approved*.

Confirmation of Knowledge

In PNNL's experience, process knowledge from the generator is generally sufficient to meet the requirements for a *detailed chemical, physical, and/or biological analysis* of wastes accepted at the 325 HWTUs for the following reasons:

- Wastes stored at the 325 HWTUs are generated on the Hanford Site and/or by PNNL research programs who maintain effective administrative control over individual waste generating units (i.e., the same organization generates the waste and operates the storage unit).
- Some wastes stored at the 325 HWTUs are discarded chemical products for which knowledge of waste characteristics is available without further analysis.
- Most of the waste stored at the 325 HWTUs is a result of research activities that are carefully controlled and documented; this documentation includes information on chemical constituent inputs and outputs.

To confirm the sufficiency and reliability of the knowledge provided by generators, waste management activities (e.g. satellite accumulation areas) are co-managed by field-deployed waste management staff.

These staff assists in obtaining the data and other information utilized to prepare the profile, and review the quality and sufficiency of the information provided in order to confirm that it is adequate for safely managing the waste. Other methods for confirmation noted in WAC 173-303-300(2)(a) may be used instead of or in conjunction with onsite visits and data review in special situations.

Instances where the 325 HWTUs require testing to corroborate process knowledge include the following:

- When waste management personnel have reason to suspect a change in the waste based on inconsistencies on the profile or in packaging or labeling of the waste.
- When the information submitted previously by a generator does not match the characteristics of the waste that was submitted.
- When a receiving TSD facility rejects the waste because waste verification at that facility reveals an inconsistency with the waste profile provided by the 325 HWTUs.

Testing is not required when the inconsistency deals with a listing based on process usage (e.g. F001 designation based on use as a solvent).

If a waste stream is profiled and multiple shipments of the same waste stream are accepted using the same approved profile, it must be reevaluated when the generator and/or the 325 HWTUs personnel have reason to believe the process generating the waste, or the characteristic or the chemical constituents of the waste stream, have changed, or there is a manifest discrepancy (for wastes received from off-site), shipping paper discrepancy (receipt of wastes from on-site dangerous waste management units) or failure of the waste verification process. Even if no such instances occur, the waste stream will be re-profiled and re-evaluated at least annually.

B.1.2 Identification and Classification of Waste

The 325 HWTUs dangerous waste management units are used for container and tank storage and treatment of dangerous waste. As a result, the following waste types are not accepted for storage:

- Bulk solids (non-containerized)

Dangerous waste containing source, special nuclear, or byproduct material under the Atomic Energy Act (i.e. mixed waste) is only accepted when already containerized or when it is to be managed in the permitted tank in Room 32 of the SAL.

Refer to Addendum C, Sections C.1.10, C.1.11, and C.2.1.5 for precautions taken in the storage of various types of wastes (e.g. ignitable, reactive, or incompatible wastes).

A wide range of waste container sizes/volumes is typically used to manage wastes at the 325 HWTUs due to the variety of research and maintenance activities supported. Refer to Addendum C for a description of secondary containment and container types and sizes managed. No individual container of material requiring secondary containment per WAC 173-303-630(7) in excess of the secondary containment capacity of the location where the waste will be managed in OUG-5 dangerous waste management units will be accepted or managed at the unit without management approval and additional secondary containment system capacity provided as required by permit conditions established pursuant to WAC 173-303-630(7). No shipment of bulk liquid greater than the operational capacity of the storage tank (1218 liters) will be accepted.

Containerized wastes managed include labpacks conforming to the standards of WAC 173-303-161, and hazardous debris and contaminated soil as defined in 40 CFR 268.2 (incorporated by reference at WAC 173-303-140).

Along with waste received for storage and treatment, the 325 HWTUs also generates dangerous waste as a byproduct of waste handling and treatment activities. Typically, these wastes include personal protective equipment, rags, and other spent materials that designate as hazardous waste when discarded. Such wastes are accumulated at the 325 HWTUs in satellite or 90-day accumulation areas (as appropriate) and a profile submitted for formal acceptance into the unit.

B.1.2.1 Dangerous Waste Numbers, Quantities, and Design Capacity

Refer to Addendum A for the waste numbers, quantities, types of treatment performed, and design capacity for the 325 HWTUs.

B.2 WASTE CONFIRMATION

B.2.1 Pre-Shipment Review

Once a waste profile has been approved per the process in Section B.1.1.1.2, it is scheduled for pickup by Waste Management staff. At pickup, waste management organization staff visits the generator storage area and make a final inspection of the waste containers to determine whether the profile and contents label information match completely, and whether the containers are adequate for transport to and storage at the 325 HWTUs. Examples of acceptable packaging include laboratory reagents in their original bottles, U.S. Department of Transportation-approved containers, spray cans, sealed ampules, paint cans, and leaking containers that have been over packed. Waste management organization staff have the authority to determine whether a container is in poor condition or inadequate for storage using the criteria referenced by WAC 173-303-190 and to use professional judgment to determine whether the packaging could leak during handling, storage, and/or treatment. The purpose of visual inspection is to confirm that the waste matches the description in the profile. As a quality assurance/quality control measure, only trained and experienced personnel conduct visual inspection of wastes to verify that the waste being picked up matches the description provided by the waste generator and evaluated during the waste verification/waste acceptance process.

If the waste is a discarded commercial chemical product, the contents of the container are inspected to verify that they match the description of the product. For other waste, e.g., spent solvents, waste descriptions are compared with the products in use at the generating unit to determine if the profile description is accurate. If, after visual inspection of the waste, any doubt remains as to the identity of the waste, the waste is not picked up. The generator is required to resubmit the profile with accurate information.

After inspection of the waste at the generating unit, and the information in the profile matches with the container labeling and visual inspection, the waste is picked up for transport to the 325 HWTUs. Any appropriate DOT labeling is applied. In addition, each waste container is labeled with a physical description of the waste (accounting for 100% of the contents), identity, and concentration of the hazardous constituents known or reasonably expected to be in the waste, and major risk(s). This information helps the waste handlers verify safe handling, storage, retrieval, and transportation of dangerous waste.

Most of the waste stored at the 325 HWTUs is generated on the Hanford Site and/or by PNNL research programs within the 300 Area. All transportation of dangerous waste to the 325 HWTUs will be according to the requirements of Permit Condition II.N. Additional requirements for waste generated outside the 300 Area include proper manifesting (if appropriate) to the 325 HWTUs and utilizing proper packaging for transport over public roadways. Although PNNL waste generated outside of the 300 Area is considered to be generated offsite since it may be transported to the 325 HWTUs on roads accessible to the public, it is generated under the same administrative controls as wastes that are generated *onsite* (i.e., in the 300 Area). Therefore, no distinction is necessary between *on-site* and *off-site* for PNNL waste with respect to the waste analysis requirements of this WAP.

B.2.2 Receipt Verification

The waste acceptance procedure for receipt of waste from both on- and off-site is based on the following requirements. These verification procedures are summarized in Table B.2.

B.2.2.1 Physical Verification Process

B.2.2.1.1 Inspection of Shipping Papers/Documentation

Document Verification

The necessary documentation (e.g. manifest or onsite shipping paper) for the entire shipment are verified (i.e., signatures are dated, all waste containers included in the shipment are accounted for and correctly indicated on the shipment documentation, there is consistency throughout the different shipment documentation, and the documentation matches the labels on the containers).

B.2.2.1.1.1 Response to Significant Discrepancies

The primary concern during acceptance of containers for storage is improper packaging or manifest discrepancies. Containers with such discrepancies are not accepted at the 325 HWTUs until the discrepancy has been resolved. Depending on the nature of the condition, such discrepancies can be resolved using one or more of the following alternatives.

- Incorrect or incomplete entries on the uniform hazardous waste manifest or on-site shipping documentation can be corrected or completed with concurrence of the onsite generator or offsite generator. Corrections are made by drawing a single line through the incorrect entry. Corrected entries are initialed and dated by the individual making the correction.
- The waste packages can be held and the onsite generator or offsite waste generator requested to provide verbal or written instructions for use in correcting the condition before the waste is accepted.
- Waste packages can be returned as unacceptable.
- If a noncompliant dangerous waste package is received from an offsite waste generator, the waste package is non-returnable because of condition, packaging, etc., and if an agreement cannot be reached among, the involved parties to resolve the noncompliant condition, then the issue will be referred to DOE for resolution. Ecology will be notified in writing if a discrepancy is not resolved within 15 days after receiving a noncompliant shipment. Pending resolution, such waste packages, although not accepted, might be placed in the 325 HWTUs. The package(s) will be segregated from other waste, and an entry will be made into the 325 HWTUs logbook describing the actions that were taken to store the packages in a safe manner until a resolution has been reached.

B.2.2.1.1.2 Activation of Contingency Plan for Damaged Shipment

If waste shipments arrive at the 325 HWTUs in a condition that presents a hazard to public health or the environment, the Building Emergency Procedure is implemented as described in Addendum J, Contingency Plan.

Inspection of Waste Containers

The condition of waste containers is checked to verify that the containers are in good condition (i.e., free of holes and punctures). Shielded, classified, and remote-handled mixed waste is not physically inspected except for examination of the external container.

Inspection of Container Labeling

Shipment documentation is used to verify that the containers are labeled with the appropriate Hazardous/Dangerous Waste labeling and associated markings according to the contents of the waste container.

Acceptance of Waste Containers

The 325 HWTUs personnel sign the shipment documents and retain a copy. Any discrepancies and their resolution are recorded in the waste management database and the Hanford Facility Operating Record, 325 HWTUs File.

B.2.3 Chemical Verification Process

The purpose of chemical verification is to verify that the waste received matches that described in the waste profile. Onsite and offsite waste received at the 325 HWTUs will receive chemical verification at the unit according to the following process.

B.2.3.1.1 Exceptions to Chemical Verification

- Laboratory reagents and commercial products such as paint, lubricants, solvent, or cleaning products are not subject to analytical verification when received in their original containers.
- Heterogeneous wastes (such as discarded machinery, shop rags, labpacks, and debris) that do not yield a representative sample are only subject to the physical screening process.
- Asbestos wastes.
- Spill cleanup wastes resulting from the spill or release of known materials.
- Wastes previously receiving chemical verification at the accumulation area (e.g. North Richland) in accordance with the requirements of this section B.2.2.2.
- Any mixed waste with a dose rate exceeding 20 millirem/hour at contact.
- Any transuranic waste (waste containing more than 100 nanocuries/gram of transuranic isotopes).
- Any shielded, classified, or remote-handled waste.

B.2.3.1.1.1 Waste designated for listing criteria based on process information (e.g. F001 waste identified as a used solvent).

B.2.3.1.2 Number of Verifications

Five percent of waste containers received from PNNL generating locations will receive chemical verification each month. The number of containers to be verified in any month is based on five percent of the number of containers received at the 325 HWTUs during the previous three months, divided by three, exclusive of those exempt from verification as described in Section B.2.2.2.1 above. Fractional numbers are rounded upwards. For example, if 40 qualifying containers are received in June 50 containers in July, and 60 containers in August, an average of 50 per month, 3 containers (50 x 5% = 2.5, rounded to 3) would be sampled and analytically verified. Note that during the first three months of operation under this WAP, the *previous three months* are the three calendar months preceding the effective date of this Permit.

Ten percent of the number of containers on any shipment from offsite (except PNNL generating locations) receives chemical verification. If a shipment contains waste from more than one generator, ten percent of containers from each generator receive chemical verification.

B.2.3.1.3 Selection Process

Randomly selected containers from onsite will receive chemical verification until the required number of verifications necessary for that month is accomplished. A variety of non-PNNL generating locations and waste types, if any, will be analyzed to the extent practicable. However, the number of containers selected from any given shipment will be based on the number of containers scheduled for pickup during the current month as well as the number of containers in the individual shipment that are subject to chemical verification.

B.2.3.1.4 Sampling

Waste containers selected for verification are sampled using the methods in WAC 173-303-110(2) for representative samples, or utilizing a similar method suitable to the container. For instance, to sample a one-liter bottle of homogeneous liquid, glass tubing, or a pipet would be utilized to obtain a representative sample instead of a COLIWASA. Generally, these samples are analyzed immediately, so preservation techniques are not utilized. If the samples must be stored, they will be preserved in accordance with the requirements of the analytical technique being used (Table B.2).

B.2.3.1.5 Testing Methods

The methods utilized for chemical verification at the 325 HWTUs are selected based on the appropriateness for the waste being verified. Tests performed are selected from the following.

Water Miscibility/Separable Organics. Performed utilizing water solubility Hazcat© test kits per the instructions given in those kits. These tests are not performed on materials known to be organic peroxides, ethers, and/or water reactive.

Oxidizers: Performed utilizing oxidizer Hazcat© test kits per the instructions given in those kits. These tests are not performed on materials known to be organic peroxides, ethers, and/or water reactive.

pH: SW-846 Method 9040, 9041, or 9045 (by pH meter or pH paper). This test will not be performed on organic liquids.

Cyanides: Performed utilizing cyanide Hazcat© test kits per the instructions given in those kits.

Sulfides: Performed utilizing sulfide Hazcat© test kits per the instructions given in those kits.

Halogenated/Volatile Organics: Examination with a photoionizer or flame ionizer to determine if the waste contains volatile organic compounds. Clor-D-Tect© kits may be used to detect organic halogens.

B.2.3.1.6 Quality Assurance/Quality Control for Analytical Verification

Each testing process is subject to QA/QC requirements as follows. The data quality objectives for these analyses are given in Section B.4.5.

Water Miscibility/Separable Organics: Performed utilizing water solubility Hazcat© test kits per the instructions given in those kits using test kits that are not older than the expiration date specified on the kit. Data interpretations are performed utilizing the manufacturer's instructions for the test kit.

Oxidizers: Performed according to manufacturer's instructions utilizing test kits that are not older than the expiration date specified on the kit. Data interpretations are performed utilizing the manufacturer's instructions for the test kit.

pH: Calibration of pH meters and pH paper is performed as required by the appropriate method being used (SW-846 method 9040, 9041, or 9045).

Cyanides: Performed according to manufacturer's instructions utilizing test kits that are not older than the expiration date specified on the kit. Data interpretations are performed utilizing the manufacturer's instructions for the test kit.

Sulfides: Performed according to manufacturer's instructions utilizing test kits that are not older than the expiration date specified on the kit. Data interpretations are performed utilizing the manufacturer's instructions for the test kit.

Halogenated/Volatile Organics. The photoionizer is calibrated daily (when in use) to a standard gas mixture in accordance with manufacturer's instructions. Data interpretations are performed utilizing observed data (meter readings) with adjustment as necessary based on the relative responsiveness of the waste compared to the standard mixture utilized for calibration. These adjustments are given in photoionizer manufacturer's literature. Clor-D-Tect© tests are performed according to manufacturer's instructions utilizing test kits that are not older than the expiration date specified on the kit. Data interpretations are performed utilizing the manufacturer's instructions for the test kit.

B.2.4 Waste Acceptance

Once waste items have been confirmed by physical and necessary chemical verification, as described above, the waste is considered *accepted* and placed in the designated location in the unit determined prior to pickup. Containers of dangerous waste are managed according to the requirements of Addendum C.

B.3 SELECTING WASTE ANALYSIS PARAMETERS

Physical and chemical screening parameters are chosen from those in Sections B.3.1 and B.3.2, respectively, as described in Section B.2.2.2 and B.2.2.3 of this WAP. Parameters for confirmation of designation and compliance with LDR requirements are given in Section B.3.3. Parameters, methods, and rationale for physical and chemical screening parameters and the pre-shipment review (Section B.2.1) are summarized in Table B.2.

B.3.1 Physical Screening Parameters

B.3.1.1 Visual Inspection, Rationale

Waste containers (and contents visible through the container or through an easily and safely opened lid) are examined to confirm that waste matches the physical description given in the waste profile documentation. Labeling examination also identifies waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria. For instance, an organic destined for incineration might contain acids that the intended facility does not have permit authorization to treat by DEACT.

B.3.1.2 Visual Inspection, Method

Waste containers are inspected by trained, experienced personnel to verify that it matches the description in the profile. If the waste is a discarded product, the contents of the container are inspected to verify that they match the description of the product. For other waste, e.g., spent solvents, waste descriptions are compared with the products in use at the generating unit. This information is compared to the description of the waste in the profile. If, after visual inspection of the waste and inquiry of the generating unit personnel, any doubt remains as to the identity of the waste, the waste is not picked up and required to be re-profiled by the generator.

B.3.1.3 Visual Inspection, Failure Criteria

Waste does not correlate with the description of the waste (e.g. color, layering, consistency).

B.3.2 Chemical Screening Parameters

B.3.2.1 Water Miscibility

Rationale: Water miscibility/separable organics testing is chosen to confirm that waste matches that described on waste acceptance documentation, identify separable organics, and/or identify waste prohibited by downstream TSD unit acceptance criteria. Not performed on organic peroxides, ether, or water-reactive wastes.

Method: Performed using water solubility Hazcat© test kits per the instructions given in those kits.

Failure Criteria: Test results do not confirm the presence or absence of constituents of interest.

B.3.2.2 Oxidizer

Rationale: The oxidizer test is performed to confirm that waste matches that described on waste acceptance documentation, and verify waste requires oxidizer management pursuant to WAC 173-303-395 (1)(b) at the 325 HWTUs. Not performed on organic peroxides, ether, or water-reactive compounds.

Method: HazCat© Oxidizer Screen Test Kit

Failure Criteria: Test results do not confirm the presence or absence of constituents of interest.

B.3.2.3 pH

Rationale: Used to confirm that waste matches that described on waste acceptance documentation and to verify compliance with WAC 173-303-395(1)(b) concerning separation of incompatible wastes. (Not used for solids or organic liquids).

Method: pH Screen SW-846 Method 9040C or 9045 (pH meter) or 9041A (pH paper).

Failure Criteria: Test result does not match the pH given in the profile within a 4.0 pH unit tolerance, or the observed pH results in a designation change (e.g. profiled as non-corrosive, but exhibits a pH ≤2.0 or ≥12.5).

B.3.2.4 Cyanides

Rationale: Confirm that waste matches that described on waste acceptance documentation; verify waste requires compliance with WAC 173-303-395(1)(b) concerning separation of incompatible wastes.

Method: HazCat© Cyanide Screen Test Kit

Failure Criteria: Test results do not confirm the presence or absence of cyanide.

B.3.2.5 Sulfides

Rationale: Confirm that waste matches that described on waste acceptance documentation; verify waste requires compliance with WAC 173-303-395(1)(b) concerning separation of incompatible wastes.

Method: HazCat© Sulfide Screen Test Kit

Failure Criteria: Test results do not confirm the presence or absence of sulfide.

B.3.2.6 Halogenated/Volatile Organic Compounds

Rationale: Confirm that waste matches that described on waste acceptance documentation

Method: Photoionizer or Flame Ionizer, or Clor-D-Tect Kits©

Failure Criteria: Test results do not confirm the presence or absence of organics (photoionizer or flame ionizer testing) or of halogenated organics (Clor-D-Tect Kits).

If a waste is determined to have failed any of the tests performed above, the discrepancy resolution process described in Section B.2.2.1.1.1.1 of this WAP is utilized to resolve the discrepancy. If the discrepancy cannot be easily resolved, the waste is returned to the generator and must be re-profiled prior to consideration for acceptance.

B.3.3 Other Analysis Parameters

The 325 HWTUs does not have any process vents that manage hazardous waste with organic concentrations of at least 10 parts per million by weight percent, or pumps, or compressors used more than 300 hours per year that come into contact with hazardous waste with an organic concentration of at least 10 percent by weight. As a result, no special waste analysis requirements for volatile organics are required by WAC 173-303-690 or -691.

A variety of small volume chemical wastes is generated by PNNL's research laboratory activities. These containers typically range in sizes from 10 ml to 5 gallons. These wastes are brought to the 325 HWTUs and segregated by compatibility for storage (refer to *incompatible waste* in the definitions section of this WAP) in the unit until enough waste is accumulated to fill a labpack or bulking container, usually a 30- to 55-gallon drum. All containers having a design capacity greater than 0.1 m3 to less than or equal to 0.46 m3 are equipped with a cover and comply with all applicable Department of Transportation regulations on packaging hazardous waste for transport under 49 CFR 178.

DOT approved intermediate bulk packaging may be used for some wastes in a solid form and containing less than 500 parts per million volume (ppmw) volatile organics and/or meets the LDR treatment standards for the waste with regard to organic hazardous constituents. These containers range in size

from 0.1 cu yard (27 cu ft) to 1.6 cu yard (43 cu ft). When intermediate bulk packaging is used for dangerous waste, determination of organics content will comply with waste determination procedures of 40 CFR 264.1083, incorporated by reference at WAC 173-303-692(2). Alternatively, waste will be containerized compliant with 40 CFR 264.1086, as described in Addendum C, Section C.3, prior to being placed in the intermediate bulk packaging for transport.

B.4 SELECTING SAMPLING PROCEDURES

B.4.1 Sampling Strategies

Samples are collected for chemical screening as required by Section B.2.2.2 of this WAP. Sample collection methods conform to the representative sample methods referenced in WAC 173-303-110(2).

B.4.2 Sampling Methods

In all instances, sampling methods will conform to the representative sample method referenced in WAC 173-303-110(2), i.e., ASTM standards for solids and SW-846 for liquids. Some adaptation of the method may be necessary for small containers being sampled for chemical screening, as discussed in Section B.2.2.2.4. Exceptions to the methods may also be used if permissible pursuant to WAC 173-303-110, NRC/EPA *Clarification of RCRA Hazardous Waste Testing Requirements for Low-Level Radioactive Mixed Waste – Final Guidance* (62 Federal Register 62080, November 20, 1997), Data Quality Objectives, and/or an alternative approved by Ecology pursuant to the permit modification process. The specific sampling methods and equipment used varies with the chemical and physical nature of the waste material and the sampling circumstances.

B.4.3 Selecting Sampling Equipment

Representative samples of liquid waste from containers (vertical *core sections*) are typically obtained using a composite liquid waste sampler (COLIWASA) or tubing, as appropriate. The sampler is long enough to reach the bottom of the container in order to provide a representative sample of all phases of the containerized liquid waste. If a liquid waste has more than one phase, each phase is separated for individual testing, depending on the waste management pathways of the phases.

Other waste types that might require sampling are sludges, powders, and granules. In general, nonviscous sludges are sampled using a COLIWASA. Highly viscous sludges and cohesive solids are sampled using a trier, as described in ASTM Standard D1452-80. Dry powders and granules are sampled using a thief, as described in ASTM Standard D346-75.

Samplers are constructed of material compatible with the waste. In general, aqueous liquids are sampled using polyethylene samplers, organic liquids using glass samplers, and solids using polyethylene samplers. Disposable samplers are used whenever possible to eliminate the potential for cross-contamination. If non-disposable sampling equipment is used, it is decontaminated between samples as necessary to ensure subsequent samples are representative of the wastes being sampled.

B.4.4 Sample Preservation

All sample containers, preservation techniques, and hold times follow SW-846 protocol. Many samples are immediately analyzed at the 325 HWTUs or in nearby laboratories in the 325 Building and are not preserved.

B.4.5 Establishing Quality Assurance and Quality Control for Sampling

Pacific Northwest National Laboratory is committed to maintaining a high standard of quality for all of its activities. A crucial element in maintaining that standard is a quality-assurance program that provides management controls for conducting activities in a planned and controlled manner and enabling the verification of those activities.

The QA/QC objective of the 325 HWTUs is to control and characterize errors associated with collected data and to illustrate that waste testing has been performed according to specification in this waste analysis plan.

The data-quality objectives (DQO) for the waste sampling and data analyses are as follows:

- Determine if waste samples are representative of the contents of the containers at the time the samples were taken.
- Determine if waste accepted for storage meets the 325 HWTUs waste-acceptance criteria (Addendum B).
- Determine if waste to be accepted match the corresponding waste description in the approved waste profile.

B.5 LABORATORY SELECTION AND QUALITY ASSURANCE/QUALITY CONTROL

B.5.1 Evaluation of Laboratories

Laboratory selection is limited. Preference will be given to any PNNL facility or other laboratories on the Hanford Facility that exhibit-demonstrated experience and capabilities in four major areas:

- Comprehensive written QA/QC program based on DOE-RL requirements specifically for that laboratory.
- Audited for effective implementation of QA/QC program.
- Participate in performance-evaluation samples to demonstrate analytical proficiency.
- Demonstrated ability to produce analytical data meeting the data quality requirements of this WAP.

All laboratories (onsite or offsite) are required to have the following QA/QC documentation:

- Daily analytical data generated in the contracted analytical laboratories are controlled by the implementation of an analytical laboratory QA plan.
- Before commencement of the contract for analytical work, the laboratory will have its QA plan available for review. At a minimum, the QA plan will document the following:
  - Sample custody and management practices
  - Requirements for sample preparation and analytical procedures
  - Instrument maintenance and calibration requirements
  - Internal QA/QC measures, including the use of method blanks
  - Required sample preservation protocols
  - Analysis capabilities

B.5.2 Quality Assurance/Quality Control Objectives

The objective of the QA/QC program is to control and characterize any errors associated with the collected data and to confirm that the data collected is adequate for its intended purpose. Quality-assurance activities, such as the use of standard methods for locating and collecting samples, are intended to limit the introduction of error. Quality-control activities, such as the collection of duplicate samples and the inclusion of blanks in sample sets, are intended to provide the information required to characterize any errors in the data. Other QC activities, such as planning the QC program and auditing ongoing and completed activities, verify that the specified methods are followed and that the QA information needed for characterizing error is obtained. To illustrate that waste testing has been performed according to requirements of this waste analysis plan, activities include:

- Field inspections–performed and documented by waste management staff at the generating location. The inspections primarily are visual examinations but might include measurements of materials and equipment used, techniques employed, and the final products. The purpose of these

inspections is to confirm the sufficiency and reliability of the knowledge used for the waste profile.

- Field-testing–performed onsite by the 325 HWTUs staff (or designee) according to specified procedures or protocol identified by the manufacturer's instructions supplied in the field test kits.
- Laboratory analyses–performed by onsite or offsite laboratories on samples of waste. The purpose of the laboratory analyses is to determine constituents or characteristics present and the concentration or level.

The 325 HWTUs will assess analytical data used for decision making according to the following quality standards, as appropriate for the data considered:

- Precision: Agreement between the collected samples/duplicates for the same parameters, at the same location, subjected to the same preparation and analytical techniques. Analytical precision also includes agreement among individual test portions taken from the same sample.
- Accuracy: Agreement between the observed data and the result of QA samples (e.g. certified standards, in-house standards, and performance evaluation samples).
- Representativeness: The degree to which the data accurately represent the waste stream. Criteria evaluated include number and adequacy of sampling locations, use of appropriate sampling and analytical methods, and documentation of environmental conditions at time of sampling.
- Completeness: Amount of data obtained versus amount requested.
- Comparability: Ability to compare one data set to another. Usually addressed by evaluating proper use of standard methods prescribed in this WAP.

These practices verify that all data and the decisions based on that data are technically sound, statistically valid, and properly documented.

The primary purpose of waste testing is to confirm the waste is acceptable for treatment or storage at the 325 HWTUs in compliance with the requirements of this WAP. Waste testing also is performed to verify the safe management of waste being stored and control of the acceptance of waste for storage. The specific objectives of the waste-sampling and analysis program at the 325 HWTUs are as follows:

- Identify the presence of waste that is incompatible with waste currently stored.
- Provide a detailed chemical and physical analysis of the waste before the waste is accepted at the 325 HWTUs to ensure proper management and disposal.
- Provide an analysis that is accurate and up-to-date.
- Ensure safe management of waste undergoing storage at the 325 HWTUs.
- Demonstrate compliance with applicable LDR treatment standards, for waste treated at the 325 HWTUs.
- Identify and reject waste that does not meet the 325 HWTUs acceptance requirements (e.g., incomplete information).

B.5.3 Laboratory Quality Assurance/Quality Control

All analytical work performed by independent laboratories, is defined, and controlled by a Statement of Work, prepared in accordance with administrative procedures and requirements of this WAP. The daily quality of analytical data generated in the analytical laboratories will be controlled by the implementation of an analytical laboratory QA plan. At a minimum, the plan will document the following:

- Sample custody and management practices.
- Requirements for sample preparation and analytical procedures.
- Instrument maintenance and calibration requirements.
- Internal QA/QC measures, including the use of method blanks.

- Required sample preservation protocols following receipt of samples at the laboratory.
- Analysis capabilities.

The types of internal quality-control checks are as follows and are used as specified in the analytical laboratory's program as described in Section B.5.1:

- Method Blanks–Method blanks usually consist of laboratory reagent-grade water treated in the same manner as the sample (i.e., digested, extracted, distilled) that is analyzed and reported as a standard sample would be reported.
- Method Blank Spike–A method blank spike is a sample of laboratory reagent-grade water fortified (spiked) with the analytes of interest, which is prepared and analyzed with the associated sample batch.
- Laboratory Control Sample–A QC sample introduced into a process to monitor the performance of the system.
- Matrix Spikes–An aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis.
- Laboratory Duplicate Samples–Duplicate samples are obtained by splitting a field sample into two separate aliquots and performing two separate analyses on the aliquots. The analyses of laboratory duplicates monitor the precision of the analytical method for the sample matrix; however, the analyses might be affected by nonhomogeneity of the sample, in particular, by nonaqueous samples. Duplicates are performed only in association with selected protocols. Duplicates are performed only in association with selected protocols. Laboratory duplicates are performed on 5 percent of the samples (1 in 20) or one per batch of samples. If the precision value exceeds the control limit, then the sample set must be reanalyzed for the parameter in question.
- Known QC Check Sample–This is a reference QC sample as denoted by SW-846 of known concentration, obtained from the EPA, the National Institute of Standards and Technology, or an EPA-approved commercial source. This QC sample is taken to check the accuracy of an analytical procedure. The QC sample is particularly applicable when a minor revision or adjustment has been made to an analytical procedure or instrument. The results of a QC-check standard analysis are compared with the true values, and the percent recovery of the check sample is calculated.

PNNL Analytical Chemistry Laboratory QA/QC

PNNL's analytical chemistry laboratory may need to be used to analyze samples of potentially radioactive dangerous waste. It has a rigorous QA plan that verifies that data produced are defensible, scientifically valid, and of known precision and accuracy, and meets the requirements of its clients.

B.5.4 DATA ASSESSMENT

Analytical data will be communicated clearly and documented to verify that laboratory data-quality objectives are achieved.

- The acquired data need to be scientifically sound, of known quality, and thoroughly documented. The DQOs for the data assessment are given in Section B.5.2.

B.6 SELECTING WASTE RE-EVALUATION FREQUENCIES

B.6.1 Periodic Re-Evaluation

Periodic re-evaluation is an evaluation of a waste stream that provides verification that the results from the initial verification are still valid. Periodic re-evaluation of a waste stream also checks for changes in the waste stream. Most waste stream containers are individually profiled, and hence subject to both physical and chemical analysis as described in Section B.2.2.1 and B.2.2.2 of this WAP, each time they are received at the 325 Hazardous Waste Treatment Units. Any waste stream received by the 325

Hazardous Waste Treatment Units not re-profiled each time containers of that waste stream are submitted (i.e. *standing profiles*) will be re-evaluated at least annually.

B.6.2 Re-Evaluation for Cause

Re-evaluation of a waste stream under a *standing profile* will also be required if any of the following occur:

- The 325 Hazardous Waste Treatment Units personnel have reason to suspect a change in the waste, based on inconsistencies in packaging, labeling, or visual inspection of the waste.
- The information submitted previously does not match the characteristics of the waste submitted as identified through fingerprint testing.
- The process generating the waste changes.

B.7 SPECIAL WASTE ANALYSIS PROCEDURAL REQUIREMENTS

B.7.1 Procedures for Receiving Onsite and Offsite Waste

Most of the waste stored at the 325 Hazardous Waste Treatment Units is generated on the Hanford Site and/or by PNNL research programs within the 300 Area. Additional requirements for waste generated off the Hanford Site include proper manifesting (if required) to the 325 Hazardous Waste Treatment Units and proper packaging for transport over public roadways. Offsite waste is subject to more stringent chemical verification (Section B.2.2.2.2). Although PNNL waste generated outside of the 300 Area is considered to be generated offsite since it may be transported to the 325 Hazardous Waste Treatment Units on roads accessible to the public, it is under the same administrative controls as wastes that are generated onsite (i.e., in the 300 Area).

The procedures for receiving waste at the 325 Hazardous Waste Treatment Units are given in Section B.2.

B.7.2 Provisions for Complying with Land Disposal Restriction Requirements

The *Dangerous Waste Regulations* prohibit the land disposal of certain types of wastes. Most of the waste types stored at the 325 Hazardous Waste Treatment Units falls within the purview of these land-disposal restrictions (LDRs). Occasionally, treatment takes place that is intended to meet the applicable LDRs for a stored waste. Information presented below describes how generators and the 325 Hazardous Waste Treatment Units personnel characterize, document, and certify waste subject to LDR requirements.

B.7.2.1 Waste Treatment

Permitted waste treatment occurs at the 325 Hazardous Waste Treatment Units. Waste received may or may not meet the applicable LDR treatment standards determined during the acceptance process (Section B.2). Waste received for storage that does not meet the applicable LDR treatment standards at the *point of generation* will receive treatment at the 325 Hazardous Waste Treatment Units, and/or by offsite facilities.

Shipments of waste shall not be accepted from any non-PNNL generator without any required LDR certification accompanying each shipment. For waste received from non-PNNL generators, the 325 Hazardous Waste Treatment Units shall receive the information required by WAC 173-303-140 regarding LDR wastes. The generator must sign the LDR certification.

The types and quantities of waste treated at the 325 Hazardous Waste Treatment Units are described in Addendum A. When these treatments are performed to meet applicable LDR treatment standards, the requirements of this section apply.

Since treatments conducted at the 325 Hazardous Waste Treatment Units are generally conducted as small bench-scale operations (except for stabilization in larger containers and in-tank treatments), trace contaminants in wastes are usually not a threat to the safety or conduct of these treatments. However, before accepting waste for treatment via thermal treatment (T11-T18) or biological treatment (T67-T77) technologies given in WAC 173-303-380(2)(d), 325 HWTUs staff will review, and amend if necessary,

this WAP to include any additional data needs expected to be triggered by those technologies and the need to demonstrate compliance with applicable LDR treatment standards.

B.7.2.2 Sampling and Analytical Methods

Testing of treated waste will be performed as provided in 40 CFR 268.7(b) according to the treatment standards of 40 CFR 268.40 (adopted by reference at WAC 173-303-140). Sampling methods for treated wastes will be chosen from the methods given in Section B.4 appropriate to the treated waste. Analytical methods used for confirmation that the specified treatment standard(s) of 40 CFR 268.40 (incorporated by reference at WAC 173-303-140) and any applicable state-specific LDRs will be selected from those specified in WAC 173-303-110(3) as appropriate for the treated waste being analyzed.

Since most wastes are submitted as individual waste streams, sampling and analysis of treated waste is performed on each batch as specified in 40 CFR 268.40(b), adopted by reference at WAC 173-303-140.

B.7.2.3 Land Disposal Restriction Certification of Treatment

Permitted waste treatment occurs at the 325 Hazardous Waste Treatment Units. Certification of treatment related to waste treated at the 325 Hazardous Waste Treatment Units is managed in accordance with the recordkeeping process described in Section B.8.

B.8 RECORDKEEPING

Records associated with the waste-analysis plan and waste-verification program are maintained by the waste-management organization and are placed in the Hanford Facility Operating Record, 325 HWTUs File. A copy of the profile for each waste stream accepted at the 325 Hazardous Waste Treatment Units shall be placed in the Hanford Facility Operating Record, 325 HWTUs File. Organizational units associated with generator activities maintain their sampling and analysis records. The waste analysis plan shall be revised through the permit modification process whenever regulation changes affect the waste analysis plan.

The 325 Hazardous Waste Treatment Units has and will continue to receive and store restricted or prohibited waste. Because the 325 Hazardous Waste Treatment Units personnel verify designations and characterization, including LDR determinations, qualified staff for PNNL-generated waste prepare all notifications and certifications, as required by 40 CFR 268, incorporated by reference by WAC 173-303-140. The 325 Hazardous Waste Treatment Units staff collects information from generators via the waste profile to assure that applicable LDR treatment standards have been properly identified, as well as any information documenting compliance with applicable LDR treatment standards. The notifications and certifications are submitted to onsite and offsite TSD units during the waste-shipment process. Additionally, any necessary LDR treatment variance requests are prepared by PNNL qualified staff for U.S. DOE submittal to Ecology for approval.

The 325 Hazardous Waste Treatment Units staff requires applicable LDR information/notifications from non-PNNL generators.

Where a restricted or prohibited waste does not meet the applicable treatment standards set forth in 40 CFR 268, Subpart D, the 325 Hazardous Waste Treatment Units provides to the onsite dangerous waste management unit or offsite TSD facility a written notice that includes the information required by 40 CFR 268.7.

In instances where the 325 HWTUs staff determines that a restricted waste is being managed that can be land-disposed without further treatment, the 325 HWTUs staff submits a written notice and certification to the onsite dangerous waste management unit or offsite TSD facility where the waste is being shipped, stating that the waste meets applicable treatment standards set forth in 40 CFR 268, Subpart D, incorporated by reference by WAC 173-303-140, and includes the information required by 40 CFR 268.7.

The certification accompanying any of the notices previously described is signed by an authorized representative of the generator and states the following:

I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR 268, Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d). I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

Certifications and notifications of treatment are prepared and submitted in accordance with the applicable requirements of 40 CFR 268.7(b), incorporated by reference by WAC 173-303-140.

Copies of all notices and certifications described are placed in the Hanford Facility Operating Record, 325 HWTUs File and retained in accordance with the requirements of the Hanford Facility RCRA Permit general conditions for recordkeeping.

B.9 REFERENCES

U.S. Environmental Protection Agency. 1994. *Waste Analysis At Facilities That Generate, Treat, Store, And Dispose of Hazardous Waste: A Guidance Manual*. OSWER 9938.4-03, Washington, DC.

Washington Administrative Code. 2009. *Dangerous Waste Regulations*. WAC 173-303, Olympia, WA.

Washington Department of Ecology. 2008. *Hanford Facility Resource Conservation and Recovery Act Permit*, Revision 8, as amended.

Figure B.1. Waste Confirmation and Acceptance Process for the 325 Hazardous Waste Treatment Units

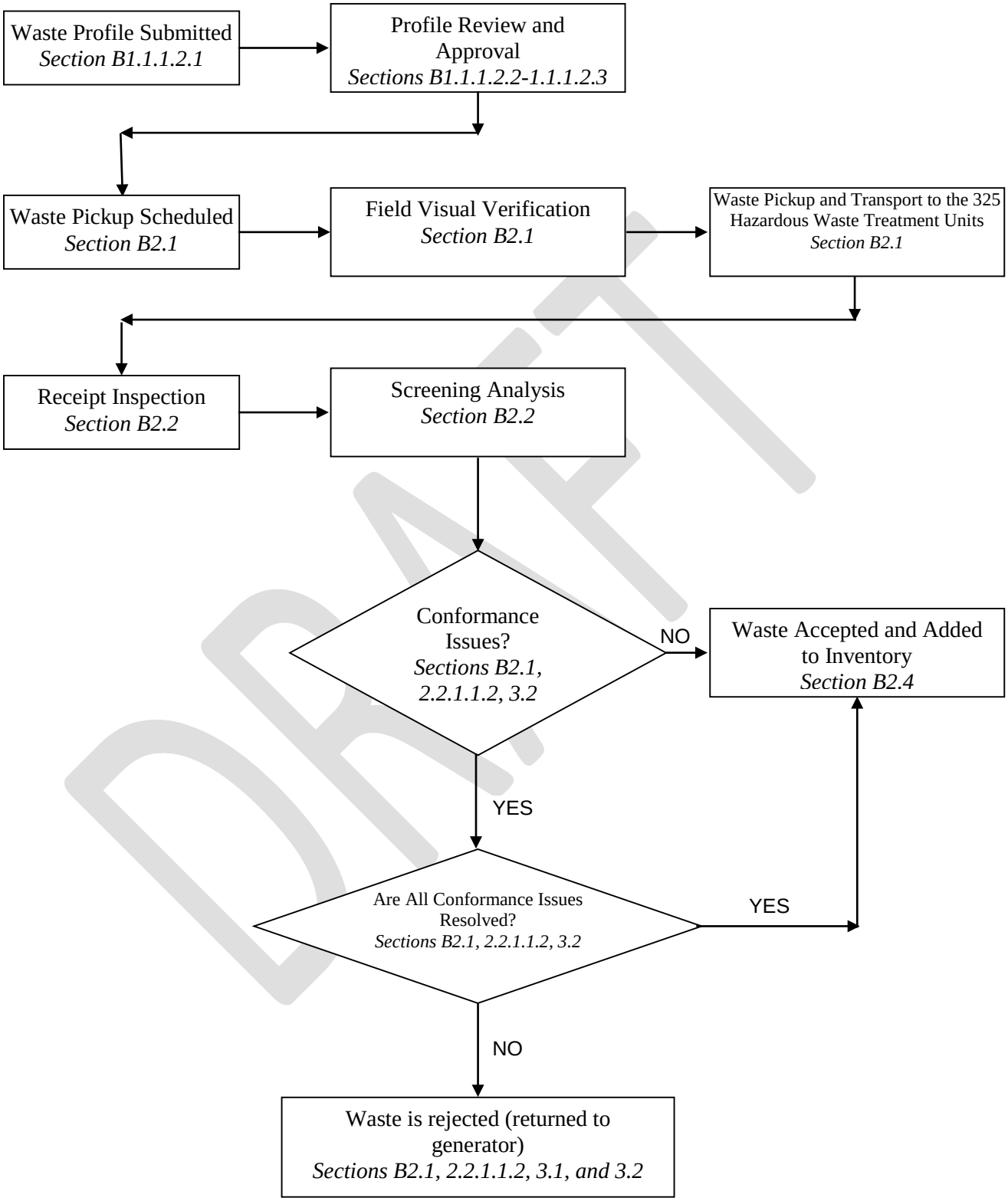

Table B.1. Waste Compatibility Chart

Class or Division[1]		Notes	1.1 1.2	1.3	1.4	1.5	1.6	2.1	2.2	2.3 Gas Zone A	2.3 Gas Zone B	3	4.1	4.2	4.3	5.1	5.2	6.1 Liquids PGI Zone A	7	8 Liquids Only
Explosives	1.1 1.2	A	*	*	*	*	*	X	X	X	X	X	X	X	X	X	X	X	X	X
Explosives	1.3		*	*	*	*	*	X	X	X	X	X	X	X	X	X	X	X	X	X
Explosives	1.4		*	*	*	*	*	O		O	O	O		O				O		O
Very insensitive explosives	1.5	A	*	*	*	*	*	X	X	X	X	X	X	X	X	X	X	X	X	X
Extremely insensitive explosives	1.6		*	*	*	*	*													
Flammable gases	2.1		X	X	O	X				X	O							O	O	
Non-toxic, non-flammable gases	2.2		X			X														
Poisonous gas Zone A	2.3		X	X	O	X		X				X	X	X	X	X	X			X
Poisonous gas Zone B	2.3		X	X	O	X		O				O	O	O	O	O	O			O
Flammable liquids	3		X	X	O	X				X	O					O		X		
Flammable solids	4.1		X			X				X	O							X		O
Spontaneously combustible materials	4.2		X	X	O	X				X	O							X		X
Dangerous when wet materials	4.3		X	X		X				X	O							X		O
Oxidizers	5.1	A	X	X		X				X	O	O						X		O
Organic peroxides	5.2		X	X						X	O							X		O
Poisonous liquids PG I Zone A	6.1		X	X	O	X		O				X	X	X	X	X	X			X
Radioactive materials	7		X			X		O												
Corrosive liquids	8		X	X	O	X				X	O		O	X	O	O	O	X		

(Key on following page)

Table B.1 Key

Notation	Description
(blank)	No incompatibility restrictions apply; materials may be stored together. Also true for any hazard class not shown (e.g. state-only dangerous waste)
X	Materials may not be stored together in the same cell; separate secondary containment is required.
O	Materials may not be stored together in the same secondary containment, but may be stored in the same cell if necessary, provided individual secondary containment devices are provided.
*	Explosives compatibility is described in 49 CFR 174.81(f) (refer to Table given there)
A	Notwithstanding the 'X' in the table, ammonium nitrate fertilizer may be stored with Division 1.1 or 1.5 materials if necessary.

Source: 49 CFR 174.81

[1] For definition of these hazard classes, refer to 49 CFR 173.2.

Table B.2. Summary of Test Parameters, Rationales, and Methods

Parameter[(a)]	Method[(b)]	Rationale for Selection
Physical Screening		
Visual inspection	Field method–observe phases, presence of solids in waste	Confirm that waste matches that described on waste acceptance documentation; identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria
Chemical Screening		
Water miscibility/separable organics (c)	Water solubility Hazcat © test kits	Confirm that waste matches that described on waste acceptance documentation; identify separable organics; identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria
Oxidizer	Oxidizer Screen Hazcat © test kits	Confirm that waste matches that described on waste acceptance documentation; verify compliance with WAC 173-303-395(1)(b)
pH	pH screen SW-846 Method 9040, 9041, or 9045	Confirm that waste matches that described on waste acceptance documentation; verify compliance with WAC 173-303-395(1)(b)
Cyanides	Cyanide screen Hazcat © test kits	Confirm that waste matches that described on waste acceptance documentation; verify compliance with WAC 173-303-395(1)(b)
Sulfides	Sulfide screen Hazcat © test kits	Confirm that waste matches that described on waste acceptance documentation; verify compliance with WAC 173-303-395(1)(b)
Halogenated/Volatile Organic Compounds	Photoionizer or Flame Ionizer, or Clor-D-Tect Kits©	Confirm that waste matches that described on waste acceptance documentation
Pre-Shipment Review		
Mercury (total)	Generator knowledge or SW-846 Method 7470/7471	Identify waste prohibited by LDR requirements related to downstream TSD unit acceptance criteria.
Toxicity characteristic organic compounds (d)	Generator knowledge or SW-846 Methods 1311 and 8260 (volatile organic compounds) and 8270 (semi volatile organic compounds)	Identify waste not identified in Addendum A, Part A Form
Polycyclic aromatic hydrocarbons	Generator knowledge or SW-846 Method 8270 or 8100	Identify waste not identified in Addendum A, Part A Form, (for waste with >1% solids and for which WP03 could apply)

(a) Addition parameters can be used on current waste acceptance criteria of the downstream TSD unit. Operation limits transfer/shipments are based on current waste acceptance criteria.
(b) Procedures based on EPA SW-846, unless otherwise noted. When regulations require a specific method, the method shall be followed.
(c) These tests will not be performed on materials known to be organic peroxides, ether, and/or water reactive compounds.
(d) This test is only performed on waste to be stored in tank TK-1 in addition to any other appropriate chemical screening.

Table B.3. Sample Chemical Disposal/Recycle Request

Field Chemical Disposal/Recycle Request

Print

Generator: _____ PR #: _____ WP#: _____

Location of Waste (Area/Bldg/Rm) _____ Location Details: _____

Contract: _____ Type of Area: ☐ 90-Day ☐ SAA Accumulation Date: _____ ☐ Sewer Approval: ☐ Annual ☐ One-time

Type of Waste: ☑ Non-Radioactive ☐ Recycle ☐ Non-RCRA PCE PCB OOS Date: _____ includes: ☐ BSL1 ☐ BSL2

☐ Radioactive ☐ Redistribute Bio Work Permit #: _____

Discharge Rate: _____

Delete

Generator ID (Container No.)	Container Type	Container size	Container Status	Waste Description	Physical State	Material Status	Waste Weight	Waste Volume	pH	Chemical Constituents	Wt% or ppm

Generator's Signature: _____ PR#: _____ Date: _____

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ADDENDUM C
PROCESS INFORMATION

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ADDENDUM C
PROCESS INFORMATION

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Table C.1. Typical Storage Containers Used at the 325 Hazardous Waste Treatment Units 23

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C. PROCESS INFORMATION

This addendum provides a description of waste management, equipment, treatment processes, and storage operations.

The 325 HWTUs receive and treat and/or store wastes described in Addendum B, Waste Analysis Plan. Small-volume containers are segregated by compatibility and stored until sufficient quantity is accumulated to prepare a labpack or bulk container (usually a 208-liter (55 gallon) drum.) Larger waste items (or waste containers) may be placed in intermediate bulk containers (e.g. boxes) and stabilized to meet LDRs and/or to meet receiving facility anti-subsidence criteria. Waste introduced into the Shielded Analytical Laboratory (SAL) tank is containerized for further management as described in Section C.2.1. Containers are repackaged for shipment as necessary and shipping documentation prepared pursuant to Permit Condition II.N for shipment to a permitted onsite dangerous waste management unit or offsite TSD facility for any necessary further treatment and compliant disposal.

C.1 Containers

The following sections describe the management of dangerous waste in containers at the 325 HWTUs. Container management occurs to store and treat dangerous wastes generated from onsite programs, primarily research laboratory analytical activities in the 325 Building and other PNNL facilities. Containers are then prepared for shipment to other on-site units or off-site TSD facilities for further treatment as required and compliant disposal. Descriptions of the containers used are provided in the sections that follow.

C.1.1 Container Selection

All containers of dangerous waste are labeled to describe the contents of the container and the major hazards of the waste as required under WAC 173-303-395 and WAC 173-303-630(3). Each container is assigned a unique identifying number. All containers used for onsite transfer are selected and labeled according to requirements of this permit, and any other applicable rules and regulations, such as 49 CFR as required by WAC 173-303-190.

C.1.1.1 Containers Located in the Hazardous Waste Treatment Unit

Rooms 520, 524 and 528 of the HWTU are used to store and treat dangerous waste generated primarily from laboratory operations throughout the 325 Building and the Hanford Facility. The containers used to store and treat dangerous waste vary widely from original manufacturer containers to laboratory glassware for sample analysis or to 322-liter containers used to overpack smaller containers. Containers used are selected based on several criteria, which may include guidance provided in PNNL's Environmental Management System, Department of Transportation container specifications, specific safety requirements (e.g. fire code requirements for storage of flammable liquids), compatibility with the waste, and/or waste acceptance criteria provided by the facilities to which the waste will ultimately be shipped. Suitable containers are identified by the waste generator and reviewed by 325 HWTUs staff prior to waste acceptance. Acceptable containers for acidic waste include plastic, steel lined with plastic, glass, and fiberglass containers. Acceptable containers for other waste include steel, glass, fiberglass, plastic, and steel lined with plastic. Table C.1 provides an example of the types of containers that could be used in the HWTU rooms, including the material of construction and the capacity of the container.

All flammable liquid waste is stored in compatible containers and in Underwriter's Laboratory (UL)-listed and Factory Mutual (FM)-approved flammable storage. Wastes that also designate as ignitable are managed according to the requirements of WAC 173-303-630(8)(b) and WAC 173-303-395(1)(a)-(c). Solid chemicals are stored on shelving or in drums in specifically designated areas based on the hazard classification (49 CFR 172.101).

C.1.1.2 Shielded Analytical Laboratory Containers

The primary function of the SAL is to conduct preparation and analysis of samples of highly radioactive materials originating from various locations on the Hanford Site. The types of containers used to store

dangerous waste in the SAL can vary widely from laboratory glassware for sample analysis to 322-liter containers used to overpack smaller containers.

The containers used for storage or treatment of dangerous waste are compatible with the waste stored in the containers. Containers used are selected based on several criteria, which may include guidance provided in PNNL's Environmental Management System, Department of Transportation container specifications, specific safety requirements (e.g. fire code requirements for storage of flammable liquids), compatibility with the waste, and/or waste acceptance criteria provided by the facilities to which the waste will ultimately be shipped. Suitable containers are identified by the waste generator and reviewed by 325 HWTUs staff prior to waste acceptance. Acceptable containers for acidic waste include plastic, steel lined with plastic, glass, and fiberglass containers. Acceptable containers for other waste include steel, glass, fiberglass, plastic, and steel lined with plastic. Table C.1 provides an example of the types of container that could be used in the SAL, including the material of construction and the capacity of the container.

Rooms 32, 200, 201, 202, and 203 are used to store dangerous waste in containers. The back face of the SAL (Rooms 200, 202, and 203) is typically used to store waste in larger containers. These containers include various types of 208-liter steel containers (lined and unlined). Because of the nature of some mixed waste being stored at the SAL, it is often necessary that these standard 208-liter containers be modified. This modification ensures that the containers are specially shielded to be compliant with ALARA criteria. These specially designed shielded containers are packaged to contain anywhere from 3.79 liters to 53 liters of waste depending on the amount of shielding required. The solid waste typically is packed in individual 3.79-liter to 4.73-liter containers before placement in the 208-liter shielded container. The shielding is accomplished by surrounding the small containers with concrete, lead, or other materials.

All flammable liquid waste is segregated from any incompatible waste types and packaged in approved containers as described above.

C.1.1.3 Containers Located in the Cask Handling Area, Truck Lock, and 3714 Pad

The portions of the Cask Handling Area (Rooms 603 and 604A) noted in Addendum A, the Truck Lock, and the 3714 Pad will be utilized only for the storage or treatment of waste that has already been packaged, except for small-scale container treatment in the fume hood in the Cask Handling Area and for stabilization in containers in all three units. Stored waste will generally be in containers of 5 gallons capacity or larger, including intermediate bulk packaging containers ranging in size from 0.1 cu yard (27 cu ft) to 1.6 cu yard (43 cu ft).

The containers used for storage or treatment of dangerous waste are compatible with the waste stored in the containers. Containers used are selected based on several criteria, which may include guidance provided in PNNL's Environmental Management System, Department of Transportation container specifications, specific safety requirements (e.g. fire code requirements for storage of flammable liquids), compatibility with the waste, and/or waste acceptance criteria provided by the facilities to which the waste will ultimately be shipped. Suitable containers are identified by the waste generator and reviewed by 325 HWTUs staff prior to waste acceptance. Acceptable containers for acidic waste include plastic, steel lined with plastic, glass, and fiberglass containers. Acceptable containers for other waste include steel, glass, fiberglass, plastic, and steel lined with plastic. Table C.1 provides an example of the types of container that could be used, including the material of construction and the capacity of the container.

C.1.2 Containers

Stored containers include various types of 208-liter steel containers (lined and unlined). Because of the nature of some mixed waste being stored, it is often necessary that these standard 208-liter containers be modified. This modification ensures that the containers are specially shielded to be compliant with ALARA criteria. These specially designed shielded containers are packaged to contain anywhere from 3.79 liters to 53 liters of waste depending on the amount of shielding required. The solid waste typically is packed in individual 3.79-liter to 4.73-liter containers before placement in the 208-liter shielded

container. The shielding is accomplished by surrounding the small containers with concrete, lead, or other materials.Container Management Practices

Management practices and procedures for containers of dangerous waste ensure the safe receipt, handling, preparation for transfer, and transportation of the waste in compliance with requirements of this permit.

Practices utilized at all 325 HWTUs units will include:

- All containers will be inspected for integrity, closure, and proper labeling per Addendum B, Waste Analysis Plan, prior to acceptance for storage at any unit.
- Whenever waste is being handled, all personnel involved will have access to the emergency communications devices described in Addendum F, Section F.1.1.1. [WAC 173-303-340(2)(a)]
- If just one person is in the unit during operations, they will have immediate access to the fire alarm and/or telephone system to summon external emergency assistance as described in Addendum F, Section F.1.1.2. [WAC 173-303-340(2)(b)]
- If a container holding dangerous waste is not in good condition (e.g. severe rusting, apparent structural defects) or if it begins to leak, the waste will be transferred to a container that is in good condition or managed in another way that complies with WAC 173-303 and this Permit. Leaks and spills will be addressed in accordance with the applicable provisions of the Contingency Plan, Addendum J. [WAC 173-303-630(2)]
- All containers will be labeled while in storage with major risk labeling as described in Section C.1.3.
- Waste will be maintained in containers that are compatible with the waste stored. [WAC 173-303-630(4)]
- Waste containers will be kept closed except when adding or removing waste, or when performing visual verification or sampling per Addendum B, or for performing waste treatment in containers. [WAC 173-303-630(5)(a), WAC 173-303-300(5)]
- Containers will not be opened, handled, and stored in a manner which may rupture the container or cause it to leak. [WAC 173-303-630(5)(b)]
- Aisles between rows of containers greater than 10 gallon capacity will be at least thirty inches wide, or to meet other applicable requirements, whichever is greater. No row of containers greater than 10 gallon capacity will be more than two containers wide. [WAC 173-303-630(5)(c)]
- Use of personnel trained in accordance with the 325 HWTUs Training Plan, as described in Addendum G.
- A system of daily and weekly container inspection, as described in Addendum I.
- Use of secondary containment as described in Sections C.1.4 through C.1.9.
- Management of ignitable or reactive waste in accordance with Section C.1.10.
- Management of incompatible wastes in accordance with Section C.1.11.

The following sections describe the unit-specific container management practices used. Table C.1 lists the typical containers used in the 325 HWTUs.

C.1.2.1 Hazardous Waste Treatment Unit Container Management Practices

Waste received for storage and treatment from outside Rooms 520, 524 and 528 is either picked up by HWTU personnel or moved to Rooms 520, 524 and 528 in containers suitable for the waste. Depending on the container weight, size or number of containers to be moved, container(s) of dangerous waste are hand carried or moved on a platform or handcart, as appropriate, to Rooms 520, 524 or 528. 325 HWTUs staff moves the dangerous containers, keeping incompatible wastes separated.

Container Handling

All flammable cabinets containing dangerous waste are maintained with a minimum of 76 centimeters of aisle space in front of the doors. In room 520, the walk-in fume hood containing the 208-liter containers is designed to hold four 208-liter containers and has over 76 centimeters of aisle space; the containers are not stacked in the hood. In room 524, the walk-in fume hood containing the 208-liter containers is designed to hold two 208-liter containers and has over 76 centimeters of aisle space in front of the doors; the containers are not stacked in the hood.

C.1.2.2 Shielded Analytical Laboratory Container Management Practices

In-cell containers will be stacked no more than four high and labels will not be obscured.

Container Handling

All container handling in the hot cells must be performed remotely with manipulators. Waste samples managed in the SAL enter the cells through rotating transfer wheels located in the back walls of cells 1, 2, and 6 and through a 17.8-centimeter borehole in the back wall of cell 1. After analysis of the sample and necessary confirmation of results, compatible solid waste samples are consolidated into appropriate size containers often referred to as 'paint cans' and usually stored in cell 1. However, any of the cells can be used for storage of waste during operations.

After evaluation for treatment and the subsequent treatment, liquid waste is either transferred to the SAL tank (discussed in §C.2), prepared for disposal through stabilization, or absorbed onto appropriate material as necessary to meet the anticipated final disposal unit waste acceptance criteria. The waste is repackaged into shielded 208-liter containers and stored in the back face area of the SAL or elsewhere in the 325 HWTUs.

C.1.2.3 Cask Handling Area, Truck Lock, and 3714 Pad Container Management Practices

Cabinets used for storage of smaller containers in the Cask Handling Area and the Truck Lock will maintain a minimum of 76 centimeters of aisle space in front of the doors.

C.1.3 Container Labeling

Once the material has been designated as a dangerous waste, all containers are marked and/or labeled to describe the content of the container as required by WAC 173-303-395 and WAC 173-303-630(3). Containers also are marked with a unique identifying number assigned by the generating unit. All containers used for transfer of dangerous waste are prepared for transport in accordance with WAC 173-303-190. Major risk labels incompatible with DOT labeling will be removed or obliterated during staging prior to shipment. [WAC 173-303-630(3), WAC 173-303-280(1) referencing WAC 173-303-190(2)]

C.1.4 Containment Requirements for Storing Containers

A description of secondary containment system design and operation is provided for the 325 HWTUs in this section.

C.1.4.1 Secondary Containment System Design and Operation for the Hazardous Waste Treatment Unit

The secondary containment system for the HWTU has three primary components: UL or FM-approved storage cabinets, individual secondary containment devices, and the firewater containment system (Figure C.1).

Liquid dangerous waste and other waste requiring secondary containment in containers not exceeding the secondary containment capacity of the cabinet is stored in Rooms 520, 524, and 528 in storage cabinets. The secondary containment capacity of the cabinets is documented in the Hanford Facility Operating Record, 325 HWTUs File, and the quantity of waste stored in the cabinet or the capacity of the largest

container in the cabinet will be limited by that capacity. The containers are selected as described in Section C.1.1.1 and are kept closed except when waste is being added or withdrawn. Ignitable and reactive waste is managed in accordance with WAC 173-303-395(1)(a) and the Uniform Building Code (ICBO 1991) (Note: The UBC references requirements of the Uniform Fire Code, or UFC).

Larger waste containers that contain bulk liquids are stored inside DOT approved containers providing secondary containment, or managed on spill containment pallets. For compatible wastes consolidated into lab-pack containers, the DOT approved outer container serves as secondary containment – such outer containers will be stored directly on the floor. Containers holding waste not subject to containment system requirements pursuant to WAC 173-303-630(7)(c) will be stored on the floor.

Each cabinet is clearly marked as containing either flammable or corrosive waste.

Prior to acceptance at the unit, liquid "bulk" containers (i.e. containing free liquids) which will not be stored in cabinets will be evaluated to determine compatibility with any other "bulk" containers currently in storage in Rooms 520 or 528. If incompatible (as determined by the Waste Analysis Plan), the incompatible liquid wastes will be placed within drip pans or similar secondary containment devices complying with WAC 173-303-630(7)(a). This is intended to prevent incompatible materials from mixing in the fire water tank secondary containment system. Containers from 65 to 328 liters (17 to 85 gallons) capacity holding only wastes that do not contain free liquids, do not exhibit either the characteristic of ignitability or reactivity as described in WAC 173-303-090(5) or (7), and are not designated as F020, F021, F022, F023, F026, or F027 will be stored in DOT approved drums on the floor within the unit. Labpacks are considered not to require further secondary containment and will also be stored directly on the floor.

Rooms 520 and 528 are located on the main floor of the 325 Building and are constructed of concrete. The concrete floors of both rooms have been equipped with a heat-sealed seamless chemical-resistant polypropylene coating that covers the entire floor area of both rooms and laps approximately 10 centimeters up all of the outside walls of each room. The coated floor is capable of containing minor spills and leaks of liquid mixed waste, and prevents migration of spilled waste from one room to another.

Major spills or leaks of liquid mixed waste flow into the firewater containment system. The firewater containment system consists of floor trenches located at each entrance to 520 and 528 and the firewater containment tank located in the basement of the building. The system is designed to collect the fire-suppression water in the event that the automatic sprinkler system was activated. The location of the trenches is shown in Figure C.1.

The floor trenches located under the double doors on the west side of Rooms 520 and 528 are approximately 20 centimeters wide, 46 centimeters deep and 1.91 meters long. The floor trench located under the single south door of Room 520 is approximately 20 centimeters wide, 46 centimeters deep, and 1.5 meters long. The floor trench located under the single southwest door of Room 528 is 20 centimeters wide, 61 centimeters deep, and 1.5 meters long. The trenches extend completely across the entrance of each room so that liquids do not flow out through a doorway. The trenches are constructed of 14-gauge stainless steel and are equipped with a steel grate cover. All seams are welded to ensure integrity. Trenches under the double doors are equipped with two drains in the bottom, and trenches located under single doors are equipped with one drain to allow liquid to drain from the trench through 15-centimeter-diameter carbon steel piping to the firewater containment tank.

The firewater containment tank is located beneath Room 520 in the basement of the 325 Building. The rectangular tank has dimensions of 1.65 meters by 2.25 meters by 1.92 meters and a capacity of 22,710 liters. The sides and floor of the tank are constructed of epoxy-coated carbon steel plate. The steel sides and floor provide support for the chemical-resistant polypropylene liner. The tank is secured to the concrete floor of the 325 Building basement with 1.3-centimeter bolts at 1.82-meter intervals.

The possibility of mixing incompatible waste in the containment system is minimized since the number of containers open at one time is limited to those in process (waste not in process is stored in closed containers). As noted above, independent secondary containment will be provided for bulk liquid wastes

which are incompatible with any other bulk liquid wastes in storage. In addition, the very large volume of any firewater flow would dilute waste and would minimize the possibility of adverse reactions.

C.1.4.2 Secondary Containment System Design and Operation for the Shielded Analytical Laboratory

The secondary containment in the SAL is divided into three systems: the six hot cells, the front face (Room 201), and the back face area (Rooms 200, 202, and 203). Figure C.2 provides a first floor plan view depicting these three areas.

The secondary containment for the six hot cells consists of the stainless steel base of the cell. All waste requiring it is stored in secondary containment consisting of larger containers (e.g. "paint cans" as noted in Section C.1.2.2) and/or pans/trays.

The secondary containment system for liquids in the back face of the SAL consists of larger containers capable of holding at least 100% of the contents and/or pans/trays.. Waste is packaged in containers (e.g., paint cans, bottles, and bags) before removal from the hot cells. Once removed from the hot cells, the containers are placed into larger containers to provide secondary containment. Some containers are placed in shielded cubicles in Room 202 or in the glove boxes in Room 203 depending on container dose rates. The location of the cubicles and glove boxes is shown in Figure C.2. If any bulk liquid waste is stored in the back face area, it is provided with compliant secondary containment per WAC 173-303-630(7)(a). Labpacks are considered not to require further secondary containment.

The secondary containment system for the front face of the SAL, which is minimally used to store mixed waste (near the north end away from the manipulator area), is similar to the system for the back face. Containers holding liquid dangerous waste are placed into larger containers to provide secondary containment.

C.1.4.3 Secondary Containment System Design and Operation for the Cask Handling Area and the Truck Lock

Liquid dangerous waste and other waste requiring secondary containment in containers not exceeding the secondary containment capacity of the cabinet is stored in Rooms 603, 604A, and 610 in storage cabinets. The secondary containment capacity of the cabinets is documented in the Hanford Facility Operating Record, 325 HWTUs File, and the quantity of waste stored in the cabinet or the capacity of the largest container in the cabinet will be limited by that capacity. The containers are selected as described in Section C.1.1.1 and are kept closed except when waste is being added or withdrawn. Ignitable and reactive waste is managed in accordance with WAC 173-303-395(1)(a) and the International Fire Code.

Larger waste containers that contain bulk liquids are stored inside DOT approved containers providing secondary containment, or managed on spill containment pallets or drip pans. For compatible wastes consolidated into lab-pack containers, the DOT approved outer container serves as secondary containment – such outer containers will be stored directly on the floor. Containers holding waste not subject to containment system requirements pursuant to WAC 173-303-630(7)(c) will be stored on the floor.

Each cabinet is clearly marked as containing either flammable or corrosive waste.

Prior to acceptance at the unit, liquid "bulk" containers (i.e. containing free liquids) which will not be stored in cabinets will be evaluated to determine compatibility with any other "bulk" containers currently in storage in Rooms 603, 604A, or 610. If incompatible (as determined by the Waste Analysis Plan), the incompatible liquid wastes will be placed within drip pans or similar secondary containment devices complying with WAC 173-303-630(7)(a). This is intended to prevent incompatible materials from mixing. Containers larger than 65 liters (17 gallons) capacity holding only wastes that do not contain free liquids, do not exhibit either the characteristic of ignitability or reactivity as described in WAC 173-303-090(5) or (7), and are not designated as F020, F021, F022, F023, F026, or F027 will be stored in DOT approved drums on the floor within the unit. Labpacks are considered not to require further secondary containment and will also be stored directly on the floor.

The Cask Handling Area and Truck Lock floors are made of concrete and are coated with an epoxy paint to prevent spills and leaks from penetrating the concrete.

C.1.4.4 Secondary Containment System Design and Operation for the 3714 Pad

The 3714 Pad is made of concrete and is not coated. Unimproved adjacent soil areas may also be used for storage. Waste stored at the 3714 Pad unit must therefore:

- Not contain free liquids,
- Not exhibit the characteristic of ignitability or reactivity, and
- Not designate as F020, F021, F022, F023, F026, or F027.

For compatible wastes consolidated into lab-pack containers, the DOT approved outer container serves as secondary containment. Such waste is exempt from the secondary containment requirements of WAC 173-303-630(7) as long as the waste is elevated or otherwise protected from contact with accumulated liquids. This will be accomplished via use of pallets or other devices.

C.1.5 Structural Integrity of Base

A description of the requirements for base or liner to contain liquids is provided in the following sections.

C.1.5.1 Requirements for Base or Liner to Contain Liquids in the Hazardous Waste Treatment Unit

The floors in Rooms 520 and 528 have been equipped with a chemical-resistant polypropylene coating. All seams in the coating were finished by heat welding to ensure the integrity of the coating. The coating currently is free of cracks, gaps, and will be maintained that way throughout the life of the HWTU. The condition of the floor is inspected weekly as part of the inspection program (Addendum I). Floor coating assessment is carried out whenever the floor coating is observed to be chipped, bubbled up, scraped, or otherwise damaged in a manner that would impact the ability of the coating to contain spilled materials. Minor nicks and small chips resulting from normal operations are repaired periodically.

The floor coating holds spilled liquid until the liquid is cleaned up, or enters the drains in each room. Once the liquid has entered the drains, the liquid drains into the firewater containment tank in the basement, where the liquid is stored pending chemical analysis and treatment and/or disposal.

The base of the HWTU floors consists of 14.2 centimeter, reinforced, poured concrete slabs with no cracks or gaps. The concrete is mixed in accordance with ASTM 094, Section 5.3, Alternate 2, and is finished with a smooth troweled surface. The concrete base has a load capacity of 976 kilograms per square meter.

The floor trenches that prevent liquids from migrating from rooms 520 and 528 are constructed of 14-gauge stainless steel. All seams are welded and the connections with the drains are tight. The stainless steel is compatible with and resistant to the liquid mixed waste managed in the HWTU.

C.1.5.2 Requirements for Base or Liner to Contain Liquids in the Shielded Analytical Laboratory

The base of the floor for the six hot cells consists of a 0.48-centimeter layer of stainless steel formed on top of poured concrete and has no cracks or gaps. The stainless steel base is compatible with most of the waste generated in the hot cells. The exceptions are waste containing hydrofluoric acid and high concentrations of hydrochloric acids. This waste is stored in individual secondary containment to prevent contact of the waste with the stainless steel in the event that a primary waste container was to fail. Because the volumes of waste generated and stored are small and the hot cell floors are not sloped, waste spilled during waste handling activities probably would remain localized and be cleaned up expeditiously to ensure that no damage occurs to the stainless steel. In order to avoid spillage reaching the stainless steel tank serving the hot cells, separate secondary containment is provided for waste stored in the six cells as required by WAC 173-303-630(7). Liner and base requirements for the SAL tank are discussed in §C.2.

The bases of the back face and front face of the SAL consist of a 15.2 -centimeter, reinforced, poured concrete slabs with no cracks or gaps. The concrete base has a load capacity of 976 kilograms per square meter. All waste containers requiring secondary containment stored in Rooms 200 and 201 (back and front face of SAL respectively) are maintained in individual secondary containment. In addition, the base in Room 201 is topped with a seamless chemical resistant polypropylene coating. Rooms 202 and 203 are topped with epoxy-based paint. The Room 200 concrete floor has epoxy sealant applied to a trap door in the floor that enables transfer of equipment between Rooms 200 and 32. The airflow between these rooms is from Room 200 to Room 32 due to positive air pressure in Room 200.

C.1.5.3 Requirements for Base or Liner to Contain Liquids in the Cask Handling Area and the Truck Lock

The bases of the Cask Handling Area and the Truck Lock consist of a 15.2 -centimeter, reinforced, poured concrete slabs with no cracks or gaps. The concrete base has a load capacity of 976 kilograms per square meter. The Room 603, 604A, and 610 concrete floors are painted with an epoxy-based paint for ease of recovery of spilled materials and to prevent inadvertent contamination of the underlying concrete. The floors are not sloped, but the areas are large enough to allow prompt recovery of most spills resulting from normal handling. Requirements for Base or Liner to Contain Liquids at the 3714 Pad
Not applicable. The concrete pad is serviceable but is not coated and not relied upon for integrity. In order to utilize the exemption for secondary containment at WAC 173-303-630(7)(c), containers stored at the 3714 Pad will be kept elevated to avoid contact with liquids (e.g. precipitation).

C.1.6 Containment System Drainage

A description of the containment system drainage is provided in this section.

C.1.6.1 Containment System Drainage for the Hazardous Waste Treatment Unit

The floors in Rooms 520 and 528 are not sloped. Small spills of liquid probably will collect in the cabinet and remain in a localized area until the spills are cleaned up. Containers of dangerous waste are stored in drums, on shelves within open-faced hoods, or within flammable or corrosive storage-cabinets to prevent the containers from contacting spilled materials. Large spills of liquid material would spread laterally across the flat surface of the floor. The flow of the spilled liquid would be stopped by an outside wall(s) of the room or by one of the trenches protecting the entrances to the room. The lower 10 centimeters of the outside walls of the rooms are covered with the same chemical-resistant coating as that on the floor to prevent spills from migrating through the walls.

The floor in Room 524 is not sloped. All liquid waste in this room will be stored in secondary containment. The secondary containment for liquids will consist of steel storage cabinets with secondary containment, DOT approved containers or one of the stainless steel 'container pans'. Any container holding waste not subject to containment system requirements will be stored on the floor.

The floor drains across each exit in Rooms 520 and 528 drain spills to an emergency firewater containment tank (22,710-liter capacity) located in the basement of the 325 Building. The tank captures all drained liquid, where the liquid is stored until sampling and analysis indicates a proper treatment and/or disposal method.

C.1.6.2 Containment System Drainage for the Shielded Analytical Laboratory

The stainless steel base of the hot cell is not sloped. Because of the small volume of waste that is handled, small spills probably would remain in a localized area until the spills are cleaned up. As a result, all containers of liquid mixed waste are stored within secondary containment to prevent contact with accumulated liquids.

The bases of the front and back faces are not sloped. Containers in these areas are stored within secondary containment and off the base surface to prevent spilled liquids from contacting the containers.

C.1.6.3 Containment System Drainage for the Cask Handling Area, the Truck Lock, and the 3714 Pad

The bases of the Cask Handling Area, the Truck Lock and the 3714 Pad are not sloped. Containers in these areas will be stored within secondary containment and/or elevated off the base surface to prevent liquids from contacting the containers.

C.1.7 Containment System Capacity

A description of the containment system capacity for the 325 HWTUs is provided in the following sections.

C.1.7.1 Containment System Capacity for the Hazardous Waste Treatment Unit

The maximum combined total volume of all containers of dangerous waste stored in the HWTU is 12,000 liters. The largest mixed waste storage container is a 322-liter container. The firewater containment tank provides secondary containment for larger containers stored in Rooms 520 and 528. The capacity of the firewater containment tank is 22,710 liters; therefore, the containment system is more than adequate to contain either 10 percent of the total volume of waste (2,840 liters) or the entire volume of the largest container (322 liters).

C.1.7.2 Containment System Capacity for the Shielded Analytical Laboratory

The total amount of liquid to be stored in the hot cells is governed by the area constraint of the cells. Typically, the largest amount of liquid waste to be stored in the hot cells at one time is 75.8 liters. In-cell secondary containment as described in Section C.1.4.2 is provided for all stored wastes requiring it per WAC 173-303-630(7).

Liquid waste stored in Room 201 is stored in the fume hood. The waste is stored in glass or plastic bottles that are placed in individual plastic containers of a size that is sufficient to hold all of the contents of the inner vessel. The quantity of liquid waste stored in the hood is governed by the area constraint in the hood. Similarly, liquid waste stored in Room 202 is stored in glass or plastic bottles that are each placed in individual secondary containment.

The floors of the front face and back face are constructed of concrete, and the rear face floor is coated with an epoxy-based paint. The rear face floor in Rooms 202 and 203 is covered with epoxy paint. Because of the small quantities of liquid stored in the front face and back face, any spill that is not contained by the plastic overpack probably would remain on the floor in a localized area until cleaned.

C.1.7.3 Containment System Capacity for the Cask Handling Area

Liquid waste stored in the fume hood in Room 604A is stored in glass or plastic bottles that are placed in individual containers of a size that is sufficient to hold all of the contents of the inner vessel. The quantity of liquid waste stored in the hood is governed by the area constraint in the hood.

The floors in Room 603 and 604A are constructed of concrete and are coated with an epoxy-based paint. Because of the small quantities of liquid stored in the Cask Handling Area, any spill that is not contained by the overpack or spill pallet would remain on the floor in a localized area until cleaned.

C.1.7.4 Containment System Capacity for the Truck Lock

The floor in Room 610 is constructed of concrete and is coated with an epoxy-based paint. Because of the small quantity of liquids to be stored in the Truck Lock, any spillage will be contained by the secondary containment device provided.

C.1.7.5 Containment System Capacity for the 3714 Pad

Not applicable. The concrete pad is serviceable but is not coated and not relied upon for integrity. In order to utilize the exemption for secondary containment at WAC 173-303-630(7)(c), containers stored at the 3714 Pad will be kept elevated to avoid contact with liquids (e.g. precipitation).

C.1.8 Control of Run-on

Run-on control for the 325 HWTUs is described in the following sections.

C.1.8.1 Control of Run-on for the Hazardous Waste Treatment Unit

The 325 Building mitigates the possibility of run-on for the HWTU. The level of the main floor is approximately 1.52 meters above the level of the ground surface around the building.

C.1.8.2 Control of Run-on for the Shielded Analytical Lab

The 325 Building mitigates the possibility of run-on for the SAL. The level of the main floor is approximately 1.52 meters above the level of the ground surface around the building.

C.1.8.3 Control of Run-on for the Cask Handling Area

The 325 Building mitigates the possibility of run-on for the Cask Handling Area. The level of the main floor is approximately 1.52 meters above the level of the ground surface around the building.

C.1.8.4 Control of Run-on for the Truck Lock

The Truck Lock is part of the 325 Building and is built up from the surrounding soil surface. The access ramp to the Truck Lock slopes away from the Truck Lock to the east.

C.1.8.5 Control of Run-on for the 3714 Pad

Not applicable. The 3714 Pad unit is surrounded by unimproved soil and the surrounding area is leveled to avoid run-on/run-off. In order to utilize the exemption for secondary containment at WAC 173-303-630(7)(c), containers stored at the 3714 Pad will be kept elevated to avoid contact with liquids (e.g. precipitation) that may collect temporarily.

C.1.9 Removal of Liquids from Containment System

The removal of liquids from the containment system for the 325 HWTUs is described in the following sections.

C.1.9.1 Removal of Liquids from the Hazardous Waste Treatment Unit Containment System

On discovery of liquid accumulation in the containment resulting from a spill or other release, the Building Emergency Director (BED) must be contacted in accordance with the contingency plan (Addendum J). The BED may determine that the contingency plan should be implemented. If the incident is minor, and if the BED approves, removal of the liquid commences immediately following a safety evaluation. Appropriate protective clothing and respiratory protection will be worn during removal activities; an industrial hygienist could be contacted to determine appropriate personal protection requirements and any other safety requirements that might be required, such as chemical testing or air monitoring. In addition, ventilation of the spill area might be performed if it is determined to be safe and if appropriate monitoring of the air discharge(s) is performed.

Liquid spills are contained within the Room 520, 524 or 528 storage cabinets, floor, or within the firewater containment tank. Localized spills of liquids to the floor of the HWTU rooms are absorbed with an appropriate absorbent (after the appropriate chemical reaction has occurred to neutralize reactivity in the case of reactive waste or after neutralization has occurred in the case of corrosive materials). The absorbent material is recovered and placed in an appropriate container. The floor, cabinets, and any other impacted containers can be cleaned by dry rags, soap and water, or a compatible solvent, if necessary, to remove external contamination. Contaminated rags and other cleanup material are disposed of in an appropriate manner. If spilled materials in the HWTU reach the firewater containment tank, the material will be held in place until chemical analysis indicates an appropriate treatment and/or disposal method. The waste analysis procedures and analytical methods used to designate the spilled materials are documented in Addendum B, Waste Analysis Plan. The tank is designed to allow easy access for

material sampling. Depending on the results of the analysis, the collected spill material will be recovered and disposed of at an appropriate facility.

C.1.9.2 Removal of Liquids from the Shielded Analytical Laboratory Containment System

On discovery of liquid accumulation in the hot cells or in the back or front face containment resulting from a spill or other release, the BED must be contacted in accordance with the contingency plan (Addendum J). The BED could determine that the contingency plan should be implemented. If the incident is minor, and if the BED approves, removal of the liquid commences immediately following a safety evaluation. For in-cell spills, hot cell technicians will clean up the spill using sorbents or wipers (possibly including neutralization of a spilled acid or base) and the waste will be submitted for disposal in accordance with Addendum B. For liquids discovered in the back or front face areas, appropriate protective clothing and respiratory protection will be worn during removal activities; an industrial hygienist could be contacted to determine appropriate personal protection requirements and any other safety requirements that might be required, such as chemical testing or air monitoring. In addition, ventilation of the spill area could be performed if it is determined to be safe and if appropriate monitoring of the air discharge(s) is performed.

Localized spills of liquids to the floor of the SAL will be absorbed with an appropriate absorbent (after the appropriate chemical reaction to neutralize reactivity has occurred in the case of reactive waste or after neutralization has occurred in the case of corrosive materials). The absorbent material will be recovered and placed in an appropriate container. The floor, cabinets, and any other impacted containers can be cleaned by dry rags, soap and water, or a compatible solvent, if necessary, to remove external contamination. Contaminated rags and other cleanup material will be disposed of in accordance with applicable regulations and PNNL internal waste management procedures.

C.1.9.3 Removal of Liquids from the Cask Handling Area and Truck Lock Containment Systems

On discovery of liquid accumulation in the Cask Handling Area or the Truck Lock resulting from a spill or other release, the BED must be contacted in accordance with the contingency plan (Addendum J). The BED determines if the contingency plan should be implemented. If the incident is minor, and if the BED approves, removal of any liquid commences immediately following a safety evaluation. Appropriate protective clothing and respiratory protection will be worn during removal activities; an industrial hygienist could be contacted to determine appropriate personal protection requirements and any other safety requirements that might be required, such as chemical testing or air monitoring. In addition, ventilation of the spill area could be performed if it is determined to be safe and if appropriate monitoring of the air discharge(s) is performed.

Localized spills of liquids to the floor will be absorbed with an appropriate absorbent (after the appropriate chemical reaction to neutralize reactivity has occurred in the case of reactive waste or after neutralization has occurred in the case of corrosive materials). The absorbent material will be recovered and placed in an appropriate container. The floor, cabinets, and any other impacted containers can be cleaned by dry rags, soap and water, or a compatible solvent, if necessary, to remove external contamination. Contaminated rags and other cleanup material will be disposed of in accordance with applicable regulations and PNNL internal waste management procedures.

C.1.9.4 Removal of Liquids from the 3714 Pad Containment System

Not applicable. The 3714 Pad unit will not be utilized to store containers holding free liquids. In order to utilize the exemption for secondary containment at WAC 173-303-630(7)(c), containers stored at the 3714 Pad will be kept elevated to avoid contact with liquids (e.g. precipitation) that may collect temporarily.

C.1.10 Management of Ignitable and Reactive Waste in Containers

Management of ignitable and reactive waste in containers within the 325 HWTUs is described in the following sections.

C.1.10.1 Management of Ignitable and Reactive Waste in Containers in the Hazardous Waste Treatment Units

Ignitable and reactive wastes are stored in compliance with Article 50 of the International Fire Code. Containers of ignitable and reactive waste are stored in individual flammable storage cabinets within the HWTUs.

C.1.10.2 Management of Ignitable and Reactive Waste in Containers in the Shielded Analytical Laboratory

Ignitable and reactive wastes are stored in compliance with Article 50 of the International Fire Code. Containers of ignitable and reactive waste are stored in individual flammable storage cabinets within the SAL.

C.1.10.3 Management of Ignitable and Reactive Waste in Containers in the Cask Handling Area and Truck Lock

Ignitable and reactive wastes are stored in compliance with Article 50 of the International Fire Code. Containers of ignitable and reactive waste are stored in individual flammable storage cabinets within the Cask Handling Area and Truck Lock, or in another manner that complies with Article 50.

C.1.10.4 Management of Ignitable and Reactive Waste in Containers at the 3714 Pad

Ignitable and reactive wastes are stored in compliance with Article 50 of the International Fire Code. Since there is no automated fire suppression system at the 3714 Pad, only exempt quantities of ignitable or reactive waste will be stored at the 3714 Pad.

C.1.11 Management of Incompatible Waste in Containers

The prevention of reaction of incompatible waste in containers for the 325 HWTUs is discussed in the following sections.

C.1.11.1 Management of Incompatible Waste in Containers at the Hazardous Waste Treatment Unit

Addendum F, §F.3.2, describes the methods used to determine the compatibility of dangerous waste so that incompatible waste is not stored together. Incompatible waste is never placed in the same container or in unwashed containers that previously held incompatible waste. Operations are conducted such that extreme heat or pressure, fire or explosions, or violent reactions do not occur. Uncontrolled toxic mists, fumes, dust, or gases in sufficient quantities to threaten human health or the environment are not produced; uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosion are not produced; and damage to the container does not occur. Information on the hazard classification of waste accepted by the HWTU is documented by the generating unit, which is carefully reviewed by HWTU personnel before waste acceptance. Mixing of incompatible waste is prevented through waste segregation and storage. As the containers received in the HWTU usually are smaller than 19 liters, the most common segregation is performed by storage of incompatible hazard classes in separate chemical storage cabinets. Guidance for the segregation is provided in Addendum F, §F.3.2.

Minimum aisle space is maintained according to the International Fire Code to separate incompatible waste, and the aisle space requirements of WAC 173-303-630(5) and (9), and WAC 173-303-340(3). The possibility of adverse reaction is minimized (see Addendum F, §F.3.1 for methods used to prevent sources of ignition).

C.1.11.2 Management of Incompatible Waste in Containers at the Shielded Analytical Laboratory

Incompatible waste in the SAL hot cells is managed by placing primary containers into a second container or tray capable of managing any leak or spilled material. Incompatible waste is never placed in the same container, second container or tray, or in an unwashed container that previously held incompatible waste.

Treatment operations are conducted to ensure that extreme heat or pressure, fire, or explosive or violent reactions do not occur. Potential releases would be controlled by the ventilation system that exhausts through two high-efficiency particulate air (HEPA) filters set in series, and due to the limited amount of waste in the SAL. These HEPA filters are part of the building exhaust system, which is maintained and inspected routinely in accordance with PNNL preventive maintenance standards. Emissions from the 325 Building stack, and control devices for those emissions, are regulated by the Washington State Department of Health pursuant to Chapter 246-247 WAC, and the Washington State Department of Ecology (Ecology) pursuant to Chapters 173-400, 173-401, and 173-460 WAC, respectively. Air-pressure barriers for containment control are achieved by supplying air from areas of least contamination (i.e., offices) to areas of higher contamination (i.e., cells). These systems ensure proper emission flow through the HEPA filters.

Because waste normally is treated in the SAL hot cells, human exposure to the remote potential of mixing incompatible waste or reactive waste is minimal. Waste generated and treated within the SAL hot cells is stored within separate secondary containers, which eliminates the potential for combining incompatible waste. Waste stored in the front or back face of the SAL is packaged by hazard classes for transfer or is segregated in separate secondary containment.

C.1.11.3 Management of Incompatible Waste in Containers at the Cask Handling Area

Addendum F, §F.3.2, describes the methods used to determine the compatibility of dangerous waste so that incompatible waste is not stored together. Incompatible waste is never placed in the same container or in unwashed containers that previously held incompatible waste. Operations are conducted such that extreme heat or pressure, fire or explosions, or violent reactions do not occur. Uncontrolled toxic mists, fumes, dust, or gases in sufficient quantities to threaten human health or the environment are not produced; uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosion are not produced; and damage to the container does not occur. Information on the hazard classification of waste accepted is documented by the generating unit, which is carefully reviewed by 325 HWTUs personnel before waste acceptance. Mixing of incompatible waste is prevented through waste segregation and storage. Containers smaller than 19 liters is performed by storage of incompatible hazard classes in separate chemical storage cabinets. Larger containers will be stored in individual secondary containment if incompatible waste is present in the Cask Handling Area. Guidance for the segregation is provided in Addendum F, §F.3.2.

Minimum aisle space is maintained according to the International Fire Code to separate incompatible waste, and the aisle space requirements of WAC 173-303-630(5) and (9), and WAC 173-303-340(3). The possibility of adverse reaction is minimized (see Addendum F, §F.3.1 for methods used to prevent sources of ignition).

C.1.11.4 Management of Incompatible Waste in Containers at the Truck Lock

Containers stored in the Truck Lock are larger waste containers (30 gallons or larger). Any containers that contain free liquids are stored inside DOT approved containers providing secondary containment, or managed on spill containment pallets or drip pans. Incompatibles will be separated and/or protected by individual secondary containment.

C.1.11.5 Management of Incompatible Waste in Containers at the 3714 Pad

No incompatible waste will be stored at the 3714 Pad.

C.2 Tank Systems

The following sections describe the management of dangerous waste in the SAL tank system. The tank system consists of the tank; associated piping, valves and pumps; and secondary containment. The tank system is located in Room 32 of the SAL and is used to collect liquid waste generated from the analytical laboratory operations. This SAL tank system is described in §C.2.1 and depicted in Figure C.2.

C.2.1 Shielded Analytical Laboratory Tank System

The SAL is an analytical chemistry laboratory used primarily to prepare and analyze samples for research and development activities and waste characterization. Storage and treatment of dangerous waste in containers also occurs in the SAL. This work is conducted in six inter-connected hot cells. Liquid waste generated during these operations is collected, treated if necessary and may be containerized or drained from the hot cells to the SAL tank located in Room 32 of the basement directly below the hot cells. A stainless steel trough, 15.2 centimeters wide by 7.62 centimeters deep, traverses the front of all six hot cells in which solution is poured. The trough is equipped with stainless steel grating to capture solids during solution pour. The trough collects any liquid waste poured from analytical chemistry operations, mixed waste treatment operations, other chemical and mixed waste stored in the hot cells, and spills or leaks. The liquid waste is transferred through a common stainless steel pipeline that drains into the SAL tank. The waste is treated in the tank, as needed, and batch transferred from the SAL tank to containers for disposal through a pressurized transfer line that leads back into Cell 6 of the SAL. The SAL tank volume is 1,218 liters and has a throughput of 10,000 kilograms per year.

C.2.1.1 Design, Installation, and Assessment of Tank Systems

The following sections discuss the design and installation of the SAL tank and provide information on the integrity assessment.

C.2.1.1.1 Design Requirements

Waste stored in the SAL tank has a pH between 7 and 12. The tank is constructed of 316L stainless steel. This material is compatible with any of the dangerous waste that is discharged to the tank.

The tank system design has been reviewed by an independent, qualified, registered professional engineer to verify that the strength of the material is adequate and that it can withstand the stress of daily operation. The professional engineer evaluation is included in the tank integrity assessment.

The SAL tank is a vertical double-shell tank supported by 3 legs and stands approximately 1.7 meters above the ground. The top head is a 0.95-centimeter-thick flat stainless steel plate. Both bottom heads are flanged and dished heads (torispherical), and the bottom height is 10.2 centimeters above ground. The inner shell is 107 centimeters outside diameter, the outer shell is 114 centimeters outside diameter, and each shell is 0.8-centimeter-thick stainless steel plate. The tank is located inside a containment pan that has a 203-centimeter diameter and is 51 centimeters high; the total volume of the pan is 1,648 liters. The pan provides for secondary containment of leaks from the tank, piping, and ancillary equipment and instruments located above the tank. Flanged and threaded connections are located within the containment boundary of the pan to capture any leaks that might occur from these connections. Outside the containment area, all connections are welded. There are no outlets, drainage or otherwise, on the bottom or sides of the tank.

Solution enters the tank through a gravity flow, welded drain line piped from the hot cells. The SAL sources that tie into this drainpipe includes: the hot cells, sink drain, hood drain via the sink drain, and floor drain. The cup sink drain and hood drain line is sealed off and is not in use. The drain line also functions as the tank vent that is exhausted by the hot cell exhaust system. A return line of stainless steel is attached to the top of the tank and can be 'jetted' using water pressure to transfer the tank contents back up to Cell 6 of the SAL. A mixer is located on top of the SAL tank to provide agitation of the contents for sampling and washout purposes. Process water also is provided to the tank system for cleanout of the tank and associated piping. The solution is stored in the SAL tank, treated as needed and transferred to containers for final disposal.

The SAL tank is located in a controlled access room and is monitored from two operating panels. The smaller sample panel is located next to the SAL tank, and the second main control panel is located in Room 201, the main operating gallery. The sample panel provides control for activities related to pulling a sample, such as activating the sample pump and controlling process water, and monitoring the liquid level of the tank. The main control panel provides the operators with the ability to monitor and control the entire SAL tank system. The main control panel provides level indication, high, and high-high level annunciation and contains switches for controlling pumps, agitators, valves, etc. The SAL tank is instrumented with three types of level-monitoring devices. Two devices are wired into the annunciator at the main control panel to provide high-level alarms, and one high-level alarm annunciates at the annunciator board in the control room on the third floor. This control room is staffed 24 hours a day, 7 days a week. If a high-alarm situation occurs after normal working hours, operations personnel would be notified immediately by the alarm and would take corrective action according to procedure. The SAL tank system normally is operated on the day shift. Personnel occupy the main operating gallery in Room 201, where the personnel would be alerted to off-normal conditions on the main control panel. A high-level alarm also would deenergize the process water solenoid valves to the closed position on three water lines into the hot cells and on the process water lines to the SAL tank. The containment pan contains a conductivity element that alarms at the main control panel should solution be detected in the pan. Operating procedures require that inspections of the entire system be made daily when in use (Addendum I).

C.2.1.1.2 Integrity Assessments

An independent, qualified, registered professional engineer's tank integrity certification has been completed and is on file in the Hanford Facility Operating Record, 325 HWTUs File.

C.2.1.2 Secondary Containment and Release Detection for Tank Systems

This section describes the secondary containment systems and leak detection systems installed in the SAL.

C.2.1.2.1 Requirements for Tank Systems

The secondary containment system for the SAL Tank in Room 32 consists of two components. The SAL tank is a double-walled vessel and the outer tank provides secondary containment for the inner tank. However, since the inner tank cannot be easily inspected, the outer tank is considered the "primary containment" and a pan installed under the tank is considered to provide secondary containment for the tank system.

The existing drainpipe from the hot cells to the SAL tank is a single-walled, 5.1-centimeter welded stainless steel pipe. This piping is visually inspected for leaks on a daily basis when the tank system is in use, by means of a remote video system. Flanges in this piping and ancillary equipment are located so that secondary containment is provided by the SAL tank secondary containment pan. The 325 Building provides additional containment. The basement floors are concrete, and any liquid release remains in the immediate area until cleanup. The openings to the drains in the basement are elevated 10.2 centimeters above the floor; thus, any spill would remain in the basement until enough liquid collects to fill the entire basement to a 10.2-centimeter depth. The SAL tank can hold a maximum of 1,218 liters, and the entire contents of the SAL tank would fill an area of only 3.5 meters by 3.5 meters to a depth of 10.2 centimeters. Because the basement is larger than 3.5 meters square, the liquid from the SAL tank would not enter a drain opening. Details of the design, construction, and operation of the secondary containment system are described in the following sections.

C.2.1.2.2 Requirements for Secondary Containment and Leak Detection

The secondary containment has been designed to prevent any migration of waste or accumulated liquid from the tank system to the soil, groundwater, or surface water. The secondary containment system also can detect and collect releases of accumulated liquids. A zoom color television camera surveillance system allows for tank, ancillary equipment, and general Room 32 viewing. The camera, located in

Room 32, is equipped with auxiliary lighting and mounted on a remote controlled pan and tilt head. The color monitor and camera controls are housed in a dedicated cabinet in Room 527A. The HWTU will have the option of either keeping the camera/monitor controls in Room 527A or moving it to another location for operational flexibility. By maintaining operational flexibility of where the camera controls are located, the HWTU can meet ALARA (As Low As Reasonably Achievable) requirements and minimize the expense of added HWTU training requirements.

The following is the system description.

Materials of construction - The tank and components are constructed of 316L stainless steel; this material is compatible with the aqueous waste being discharged to the tank. The waste has a pH between 7 and 12.

Strength of materials - The system design has been reviewed by an independent, qualified, registered professional engineer to verify that the strength of materials is adequate and that the tank can withstand the stress of daily operation. In addition, pressure relief valves are installed in each line exiting the SAL tank. In the event that there is a blockage in the pipe or tubing, pressure will not build up in the lines. The pressure relief valves are set to 30 psi, which is well below the design strength of stainless steel pipe and tubing. Waste drains back into the SAL tank when a pressure relief valve opens.

Strength of foundation - The system design has been reviewed by an independent, qualified, registered professional engineer to verify that the strength of the tank mounting and foundation is adequate to withstand the design-basis earthquake (DBE). This ensures that the foundation is capable of providing support to the tank and will resist settlement, compression, or uplift.

Leak detection system description - The SAL tank is double walled, and a conductivity probe is installed in the annulus to detect any leak of liquid from the primary containment. If liquid is detected by the probe, alarms are sounded immediately in a local control panel located in Room 32 and in the main control room.

A pan installed beneath the SAL tank provides secondary containment. The containment pan has a conductivity element that alarms at the main control panel if the presence of liquid in the pan is detected. The containment pan has a 203-centimeter diameter and a 51-centimeter height with a containment capacity of 1,648 liters. The containment pan will easily hold the total capacity of the 1,218-liter SAL tank plus any potential process water that might be released.

Removal of liquids from secondary containment - The tank containment, the outer shell of the double-walled vessel, is designed to contain a liquid leak from the inner vessel until provisions can be made to remove the liquid. The liquid might not be removed within 24 hours because of the coordination that must take place in the 325 Building. A tube is installed in the tank annulus, extending to the bottom and is capped at the top. If liquid were detected in the annulus, the liquid could be removed by connecting a tube between the capped fitting and the transfer pump, which would pump out the liquid to appropriate containers.

A delay of greater than 24 hours in removing the liquid from the secondary containment poses no threat to human health or the environment, because the waste continues to be contained in a sealed vessel. In the event that the outer tank should also leak, the containment pan installed beneath the tank provides secondary containment.

C.2.1.2.3 Secondary Containment and Leak Detection Requirements for Ancillary Equipment

Secondary containment for the SAL tank system ancillary equipment is provided by the containment pan below the SAL tank, by double-walled piping for the sample line between the tank and the sample station, and by daily visual inspection during use of the entire system including the existing single-walled piping. Flanged and threaded connections, joints, and other connections are located within the confines of the containment pan. Outside this pan, only double-walled piping and welded piping is allowed. The pumps are magnetic coupling pumps located above the pan. All construction material is stainless steel; for the

welded parts, the material is 316L stainless steel. Stainless steel material is compatible with the expected corrosive, dangerous, and mixed waste stored in the SAL tank. The strength and thickness of the piping, equipment supports, and containment pan are designed to onsite standards that take into account seismic requirements for the region and corrosion protection. The entire system is located on an existing basement floor built in the 1960s. The 325 Building has proven over time to be of a sound structural integrity to withstand mild earthquake forces. The containment pan has a liquid element sensor that alarms immediately at the main control panel should any leakage be detected. The containment pan has a 203-centimeter diameter and a 51-centimeter height, or 1,648 liters of capacity. The containment pan will hold the total capacity of the 1,218-liter SAL tank plus any potential process water that also might be released. In the event of an alarm, the process water solenoid valves will become de-energized to the closed position to minimize the loss of additional water.

The 325 Building is staffed or monitored 24 hours a day, 7 days a week. The control system is designed to alarm on any leak/spill or high-level alarm encountered. The personnel responding to the alarm condition will stop or secure the action causing the leak/spill, warn others of the spill, isolate the spill area, and minimize individual contamination and exposure. The spilled or leaked waste will be removed in an expeditious manner according to Addendum J requirements for cleaning up spills and leaks. Any required release reports will be filed according to the requirements of WAC 173-303-640(7).

C.2.1.2.4 Controls and Practices to Prevent Spills and Overflows

The SAL tank system has been designed to provide safe and reliable operation that prevents the system from rupturing, leaking, corroding, or otherwise failing. The tank is provided with redundant-level instrumentation to monitor tank levels. Both capacitance- and conductance-level probes are used for level monitoring and alarming. The tank will alarm on high level and interlock the process water to fail close. The process water is supplied to both the hot cells and the tank system. The containment pan is equipped with a liquid-sensing element to detect the presence of liquid and alarms at the main control panel if liquid is detected. Normally, liquid is drained to the tank by operators pouring solution into the troughs in the hot cells. This operation is carried out in a 'batch mode'. If this operation sets off a high-level alarm, the operators stop pouring solution into the troughs. Even if this operation caused an alarm condition, no spill is expected, because the tank has sufficient freeboard to hold additional waste solution. The initial level alarm is set at 92 percent of full volume. This provides an allowance of 97 liters.

Trained personnel respond to spills by stopping or securing the action causing the spill, notifying others in the area of the spill, and following the requirements of Addendum J. Measures are in place to inspect the system daily (see Addendum I).

C.2.1.3 Tank Management Practices

Wastes to be introduced to the SAL tank are first profiled and approved in accordance with the Waste Analysis Plan, Addendum B, before introduction. Introduction of liquid waste to the SAL tank is conducted by pouring the waste into the troughs. The troughs tie into the 5.08-centimeter drain header located under the hot cells. This drain header is sloped down to the SAL tank located in Room 32 of the basement. The existing drain header is the only method of introducing mixed waste solutions into this tank. The drain line is fully welded and is constructed of 316L stainless steel material. Because this drain line also serves as the SAL tank vent line, the SAL tank operates at the same pressure as that of the hot cells. The heating, ventilation, and air conditioning operating pressure for the hot cells, and therefore the SAL tank, is -1.27 centimeters water (vacuum). The SAL tank operates at slightly subatmospheric pressure, and no pressure controls are necessary for this tank system.

The SAL tank is fully monitored with tank-level instruments. A main control panel provides level status and high-alarm annunciation. Two control panels are provided with the SAL tank monitoring system. One control panel is located adjacent to the sampling station in Room 32 to control the sampling pump when samples are pulled. A second control panel is located on the operating floor in Room 201, the SAL main operating gallery. Tank status is monitored from the first floor control panel. Because waste solution is generated in a batch mode, waste solution drained to the tank is effectively controlled through

operating and administrative procedures in order to prevent high-level-alarm conditions. A safety cutoff system for the tank will shut off all incoming water to the SAL in conjunction with a high-level-alarm condition. A backup tank system was determined to be unnecessary for the SAL operations because of the presence of tank monitoring devices and the use of administrative and operational (batch-processing) controls.

The tank transfer controls provide similar safety features. The SAL tank volume may be transferred to SAL Cell 6 for treatment and/or subsequent storage in containers using a transfer line. As with the drain lines, the transfer line is constructed of single-wall stainless steel piping. All transfer line connections outside the tank's secondary containment system are protected against over pressurization via a pressure-relief valve on the tank set for 19 psig.

C.2.1.4 Marking or Labeling

Due to the ALARA concerns associated with the SAL tank, the tank itself is not labeled. The tank is located in a locked room to comply with ALARA standards. Access points to the room are labeled to meet the requirements of WAC 173-303-395 and WAC 173-303-640(5)(d). The marking of the access points is legible from a distance of 15 meters and identifies the major risks associated with the waste. The label adequately warns employees, emergency response personnel, and the public of the major risks associated with the waste being stored within the tank. The tank also has a written placard identifying important hazard concerns.

C.2.1.5 Ignitable, Reactive, and Incompatible Waste

Many different types of samples and waste materials will be brought to the SAL hot cells for analytical or research activities. These samples are accompanied by internal PNNL documentation that provides waste characterization information from the sample-generating unit. Chemical characterization provided in these forms is based on previous chemical analysis or process knowledge. The hazard potential includes exposure to mixed waste, corrosive chemicals, and hazardous chemicals. All operations performed in the SAL hot cells are conducted by qualified operators following approved procedures. Typical hot cell analytic processes generate liquid waste that is highly acidic and/or that have a high chloride level. A small quantity of organic waste is generated and segregated prior to treatment or disposal. If heavy metals are present in the liquid waste before neutralization, the metals are precipitated as hydroxides incident to the neutralization and are filtered from the solution. If the chloride content of the liquid is above 0.01 Molar, the chlorides may be removed through silver nitrate precipitation. Therefore, waste solutions are not expected to be ignitable, reactive, or incompatible when transferred to the SAL tank.

C.3 Air Emissions Control

There are no process vents in Operating Unit Group 5 (325 HWTU), so the requirements of WAC 173-303-690 do not apply. Similarly, there is no equipment managing or contacting dangerous or mixed waste with volatile organics above 10 wt%, so the requirements of WAC 173-303-691 do not apply. The SAL and the Cask Handling Area are used solely for the management of mixed waste and is therefore exempt from WAC 173-303-692. Containers stored in the HWTU, Truck Lock, and 3714 Pad will be evaluated for compliance with WAC 173-303-692 as follows.

Compliance with the Subpart CC standards is maintained by utilizing DOT-specification containers for storage, when the container has a design capacity greater than 0.1 m^3 (26.4 gallons). Containers greater than 0.46 m^3 (121 gallons) will not be used in light material service or used for stabilization where the waste being stabilized would be exposed to the atmosphere. Hence Level 1 container standards are the only standards that must be met.

To meet the Level 1 standards, the following standards are observed:

- Opening hazardous waste containers only occurs when adding or removing waste, or for necessary inspection or sampling, after which the container is promptly re-closed.

- Inspection of the closure of hazardous waste containers is checked prior to loading for shipment to the unit as part of the waste acceptance process (Addendum B, Section B.2.1).
- Any waste container greater than 0.1 m3 capacity stored longer than one year is re-inspected at least once every 12 months to check the container for deterioration or damage. Any deterioration or damage is documented and promptly repaired in accordance with 40 CFR 264.1086(c)(4)(iii).

Determination that containers with capacity greater than 0.46 m^3 (121 gallons) are not in "light material service" is provided through the acceptance criteria in the 325 HWTUs waste analysis plan (Addendum B, Section B.1.1.1.2).

Table C.1. Typical Storage Containers Used at the 325 Hazardous Waste Treatment Units

Material of Construction	Waste Capacity
Glass container/bottles	1 milliliter to 3.79 liters
Plastic containers/bottles	1 milliliter to 19 liters
Paint cans	0.47 liters to 4.73 liters
Steel containers	114 liters, 322 liters
Plastic-lined steel containers	114 liters, 208 liters
Steel 'shielded' 208-liter container	Various nominal capacity depending on necessary shielding; 3.79 liters; 53 liters
Overpack containers	322 liters
4x4x8 to 5x5x9 Waste Box	3622-6367 liters

Figure C.1. Hazardous Waste Treatment Unit Secondary Containment System

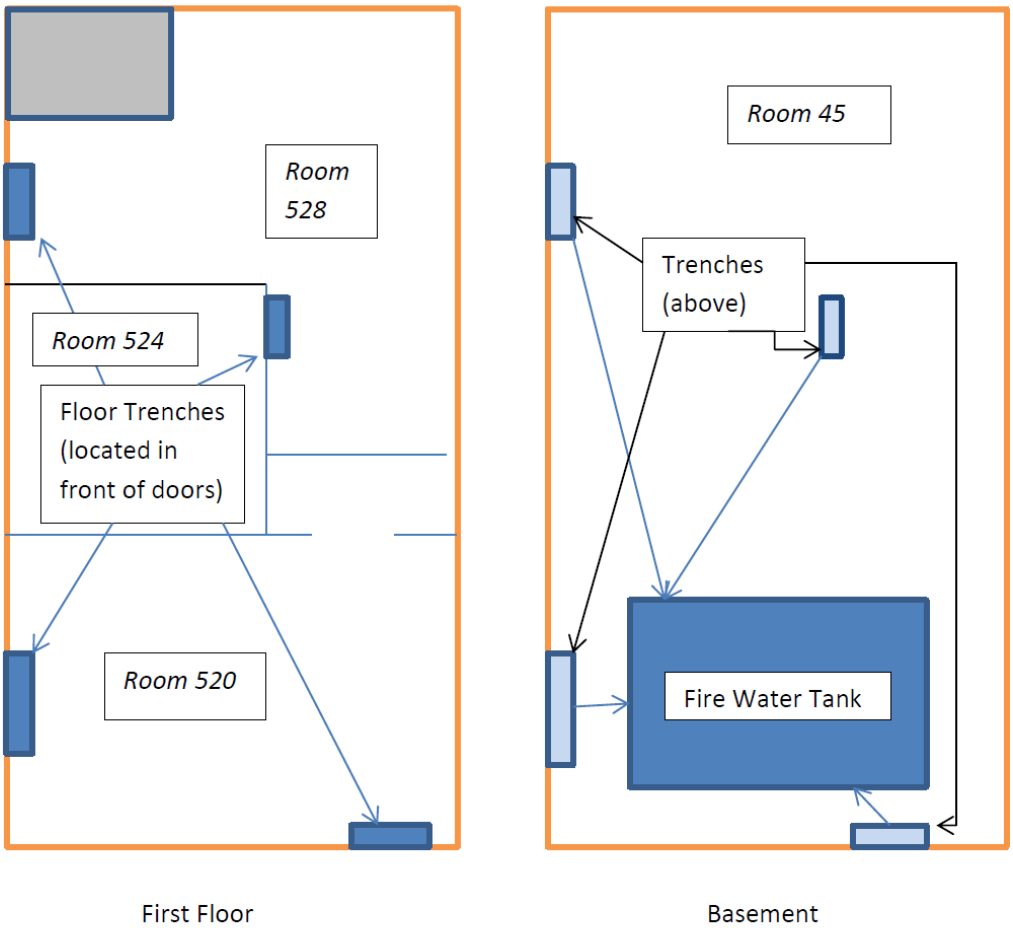
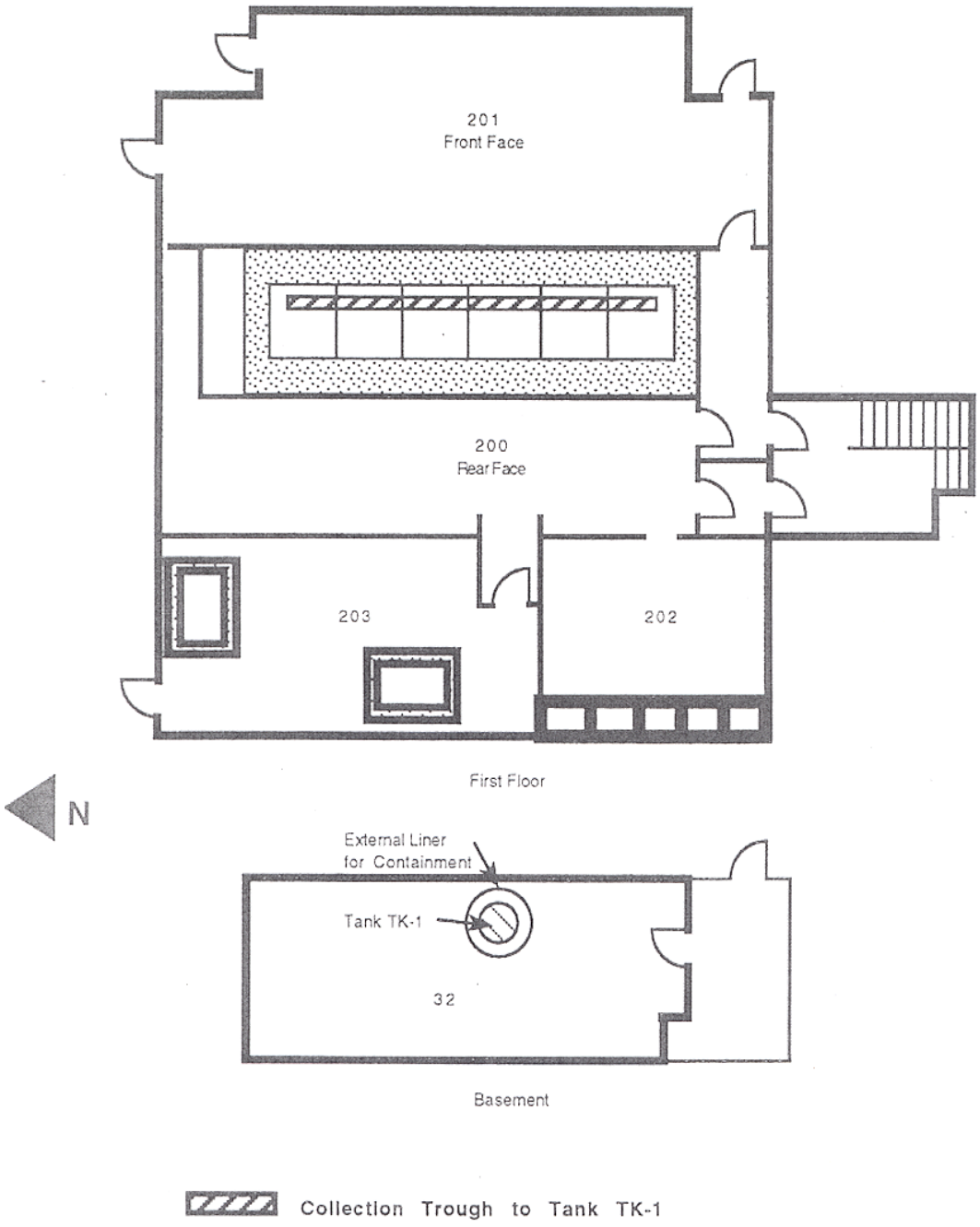


Figure C.2. SAL Tank System



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ADDENDUM E
PROCEDURES TO PREVENT HAZARDS

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ADDENDUM E
PROCEDURES TO PREVENT HAZARDS

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E. PROCEDURES TO PREVENT HAZARDS

The 325 HWTUs are operated to minimize exposure of the general public and operating personnel to dangerous waste.

E.1 Security

This section describes the 24-hour surveillance system, warning signs, and barriers used to provide security and control access to the Hanford Facility. WAC 173-303-310(2)(b), a 24-hour surveillance system, or WAC 173-303-310(2)(c), artificial or natural barriers, are met at the Hanford Facility level and are not the responsibility of the TSD unit. A 24-hour surveillance system, warning signs, and artificial and natural barriers are used to provide security and control access to the Hanford Facility. The entire Hanford Facility is a controlled access area. The Hanford Facility maintains around-the-clock surveillance for protection of government property, classified information, and special nuclear materials. The Hanford Patrol maintains a continuous presence of protective force personnel to provide additional security.

Perimeter fences, restrictive signage, and random protective force patrols are used to control access to the 300 Area. All personnel accessing locations on the Hanford Site (except for publicly accessible locations) must possess and display a U.S. DOE issued security identification badge indicating the appropriate authorization. All personnel entering or exiting the Hanford Site are subject to random security badge inspections by protective force personnel to validate access authorization. All vehicles and hand-carried items entering or exiting the Hanford Site are subject to random security badge inspections and searches by protective force personnel to validate access authorization and preclude the unauthorized introduction of prohibited/controlled articles, or the unauthorized removal of government or contractor assets.

Signs are posted at the 300 Area boundaries stating *NO TRESPASSING. SECURITY BADGES REQUIRED BEYOND THIS POINT. AUTHORIZED VEHICLES ONLY. PUBLIC ACCESS PROHIBITED* (or an equivalent legend). In addition, warning signs stating *DANGER--UNAUTHORIZED PERSONNEL KEEP OUT* (or an equivalent legend) are posted at the entrances to the active portions of the 325 HWTUs. These signs are written in English, legible from a distance of 7.6 meters, and visible from all angles of approach.

E.1.1 Waiver

Waiver of the security procedures and equipment requirements for the 325 HWTUs are not requested. Therefore, the waiver requirement outlined in WAC 173-303-310(1)(a) and (b) are not applicable.

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ADDENDUM F
PREPAREDNESS AND PREVENTION

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ADDENDUM F
PREPAREDNESS AND PREVENTION

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F. PREPARDENESS AND PREVENTION

F.1 Preparedness and Prevention Requirements

The following section documents the preparedness and prevention measures taken at the 325 HWTUs.

F.1.1 Equipment Requirements

The following sections describe the internal and external communications and emergency equipment in use at the 325 HWTUs.

F.1.1.1 Internal Communications

Internal communication systems are used to provide immediate emergency instruction to personnel in the 325 HWTUs. Internal communications address general emergencies that might occur in the 300 Area and the 325 Building, as well as specific emergencies that might occur. Personnel have access to these internal communication devices whenever waste is handled.

Because of the nature of activities that occur in the 300 Area, the potential exists for emergencies outside of the 325 HWTUs that could impact operations and personnel. Fire alarm signals are located in each building throughout the 300 Area. The nearest emergency siren for 'area evacuation' and 'take cover' is located atop the 318 Building and is audible in all parts of the 325 Building. Numerous criticality howlers (horns) are located throughout the 325 Building and are audible in all parts of the building.

Internal communications that provide emergency instruction in the event of an emergency in the 325 HWTUs and in the 325 Building are listed below. Any alarm activation results in notification of the Building Emergency Director either directly or via PNNL's Operations Center (375-2400).

- Fire alarms: The fire alarms are used to provide notification for immediate evacuation of the 325 Building. The fire alarms are initiated on activation of the manual pull boxes, heat detectors, and the sprinkler system. Fire alarm pull boxes are located as indicated in Addendum J, Section 13, Attachments 1-3.
- Differential pressure alarms (for the SAL and the glove boxes in Room 528 and 604A): Air monitoring systems with alarms are located in the 325 HWTUs. These alarms sound when normal hot cell ventilation is disrupted.
- Leak detection alarms (for the SAL): Alarms sound when liquid is detected behind the hot cells in the SAL, in the space between the inner and outer shells of Tank TK-1 in the SAL, or when liquid is detected in the secondary containment drip pan underneath the tank.

PNNL Communicator Notification System (CNS): This system allows emergency messages to be communicated quickly to staff via the PNNL phone system. When the phone is answered, a recorded message will provide event information and inform staff of actions they are expected to take.
The following non-emergency systems can also be used as appropriate and available:

- Building-wide public address (PA) system
- Intercom system (for the SAL)
- Telephones
- Hand-held radios provided by the BED

The PA system is used for building wide broadcasting of verbal emergency instructions to 325 Building personnel. The telephone system is used to provide verbal emergency instructions to 325 HWTUs personnel. The telephones also can be used to verbally transmit emergency information to personnel outside of the 325 HWTUs and to request emergency services. A network of telephones is provided throughout the 325 Building. Locations of telephones within the 325 HWTUs are shown in Addendum J, Section 13, Attachments 1-3. In addition to the telephone communication system, personnel have access to hand-held radios. The radios are available from the Building Manager. All of the radios transmit at the same frequency and are capable of summoning the PNNL Single Point Contact in case of an emergency.

Hazardous Waste Treatment Unit

There are two fire alarm pull boxes near the HWTU; one is located in the hall north of the entrance to Room 528, and one is in the hallway just east of the south entrance to Room 520. Rooms 520 and 528 are equipped with smoke detectors that, upon activation, initiate the fire alarm system and close dampers between the two rooms and the corridor. Heat detectors are provided in the glove box in Room 528. There are two fire alarm bells just outside the HWTU. These fire alarm bells are located north of the entrance to Room 528 in the hall and east of the south entrance to Room 520 in the hall.

Additionally, a fire alarm strobe is installed in Room 528. The locations of the fire pull boxes are shown in Addendum J, Section 13, Attachment 1

The glove box in Room 528 is equipped with a differential air pressure alarm that monitors the glove box for loss of negative pressure. If a loss occurs, a local alarm is sounded.

The PA system speakers are located in Rooms 520 and 528.

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There are four fire alarm pull boxes provided in the SAL; three are in Room 201, and one is in Room 203. Additionally, a fire alarm pull box is located just outside of Room 32. Heat detectors are provided in the six large interconnected hot cells in the SAL. Several fire alarm bells are located throughout the 325 Building, including two fire alarm bells within the SAL (one each in Rooms 201 and 203). These alarms are audible at all locations within the SAL.

The six interconnected hot cells in the SAL are equipped with a differential air pressure alarm that monitors the hot cells for loss of negative pressure. If a loss occurs, a local alarm is sounded.

A cable leak detection system is installed in Room 200. The cable runs behind the back wall of all six hot cells. Liquid escaping from the hot cells on the rear face (Room 200) would contact the cable and automatically sound an alarm device in Room 201. This conductivity cable runs from the hot cells to the secondary containment pan for the SAL tank in Room 32. Any release of the tank system contents to this pan, which contacts the cable, initiates the cable leak detection alarm.

The SAL tank is equipped with a conductivity probe for leak detection within the annulus of this double-shelled tank. The tank also is equipped with a high-liquid-level alarm. In the event of an interstitial leak or overfilling, audible alarms sound at the SAL tank's main control panel in Room 201.

The PA system speakers are located in Rooms 200, 201, and 203. An intercommunication system supplies two-way voice communications between Rooms 32, 200, 201, and 201a.

Cask Handling Area

Fire alarm pull boxes are located near each exit. The locations of the fire pull boxes are shown in Addendum J, Section 13, Attachment 1.

The glove box in Room 604A is equipped with a differential air pressure alarm that monitors the glove box for loss of negative pressure. If a loss occurs, a local alarm is sounded.

PA system speakers are located in Room 603.

Truck Lock

Fire alarm pull boxes are located near each exit. The locations of the fire pull boxes are shown in Addendum J, Section 13, Attachment 1.

PA system speakers are located in Room 610.

3714 Pad. No unit-specific equipment is located at the pad. In the event of an emergency, staff will utilize cell phones or enter the 325 Building to notify 375-2400 and the BED. The BED will then determine the need for 325 Building protective actions and/or use of the ONC to alert others nearby.

F.1.1.2 External Communications

As mentioned in Section F.1.1.1, a fire alarm system and telephone network system are in place at the 325 HWTUs. Both systems can be used to summon emergency assistance. The fire alarm system summons direct response from the 300 Area Fire Station. The telephone system can be used to access the PNNL Single Point Contact directly by dialing 375-2400 or by dialing the emergency number 911. For DOE-RL and other non-PNNL contractor personnel dialing 911 from onsite phones (373-0911 from cell phones), the call goes directly to the Hanford Patrol, which calls the PNNL Single Point Contact. Locations of fire alarm pull boxes and telephones are given in Addendum J, Section 13, Attachment 1. Personnel on the premises have access to these external communication devices.

F.1.1.3 Emergency Equipment

Emergency equipment available for trained 325 HWTUs personnel includes portable fire extinguishers, a fire suppression system, spill response equipment, and decontamination equipment.

With the exception of the hot cells, the entire building also is equipped with automatic sprinkler protection consisting of Schedule 40 steel pipe per ASTM A120 (ASTM 1991) and 150-pound malleable iron fittings per ANSI B16.3 (ANSI 1992). All components are UL-listed or FM-approved. The fire sprinkler system was designed and installed in accordance with NFPA 13 for 'ordinary hazard' (NFPA 1996).

Absorbent pillows are capable of absorbing small quantities of spilled inorganic and organic liquids and can be used to contain temporarily any spills of these materials. Their rated absorption capacities range from 250 to 4,000 milliliters.

Mercury spill kits are capable of cleaning up to 25 milliliter of spilled mercury. Acid, caustic, and solvent spill kits contain the materials necessary to clean up small spills of acids, bases, and organic solvents. The absorbent kits in the SAL contain absorbent pads and other materials needed to temporarily contain and clean up small chemical spills.

The appropriate spill kits can be applied, respectively, to small acid and base spills for neutralization during cleanup efforts. The caustic neutralizer has similar capabilities for neutralizing small quantities of spilled bases. If needed, the Hanford Fire Department provides additional emergency equipment.

Portable fire extinguishers (Class ABC, typically 4.5 Kg) and Class D) are located throughout the building. Eyewashes and safety showers are also located in numerous areas in or near the units. The locations of this equipment are noted in Addendum J, Section 13, Attachment 1-3. Any contaminated water will be contained and cleaned up in accordance with the Addendum J, Contingency Plan.

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Four 9.0-kilogram ABC portable fire extinguishers are located in the SAL. A portable fire extinguisher is located in Room 201 and Rooms 200 and 203 each have one portable fire extinguisher. The fourth is located just outside Room 32. Additionally, ABC dry chemical fire extinguishers are provided for each of the six large interconnected hot cells in Room 201. These extinguishers are mounted on the outside of each cell with the distribution system within the cells. The cell manipulator arms are used to direct the discharge at a fire within the cell.

F.1.1.4 Water for Fire Control

The five water pipelines that service the 325 Building for fire protection supply adequate water volume and pressure. Each of these lines is 15.2 centimeters in diameter.

Three fire hydrants are located in immediate proximity to the 325 Building; one is approximately 30.4 meters east of the southeast corner of the 325 Building; one is approximately 21.3 meters directly north of the northwest corner of the 325 Building, and one is 33.5 meters west of the southwest corner of the 325 Building. In addition, the 300 Area Fire Station is located within 0.4-kilometer of the building.

F.1.2 Aisle Space Requirements

Aisle spacing is sufficient to allow the movement of personnel and fire protection equipment in and around the containers. This storage arrangement also meets the requirements of the National Fire Protection Association and the Life Safety Code (NFPA 1994) for the protection of personnel and the environment. A minimum 76.0-centimeter aisle space is maintained between rows of containers as required by WAC 173-303-630(5)(c).

F.2 Preventive Procedures, Structures, And Equipment

The following sections describe preventive procedures, structures, and equipment.

F.2.1 Unloading Operations

Procedures have been developed to prevent hazards and to minimize the potential for breakage, punctures, or the accidental opening of containers during the transfer of waste to the 325 HWTUs. All waste is inspected before acceptance to ensure that the waste is in appropriate containers and that the containers are in good condition (see Addendum B, Section B.2.1). Inspection of containers before acceptance minimizes the potential for spills during unloading operations. The potential for spills during waste handling also is minimized using appropriate container handling equipment; small waste items can be unloaded by hand.

The volumes of dangerous waste entering and exiting the SAL are in relatively small containers (Addendum C, Process Information) and, have secondary containment because of the packaging requirements for the mixed waste materials. Any spill from such containers will be contained and not released to the environment.

F.2.2 Run-off

The 325 HWTU, SAL, Cask Handling Area, and Truck Lock were designed to eliminate the likelihood of waste migration via run-off. Because these units are enclosed completely (i.e., complete roof and no open walls), run-off of precipitation is not a factor. The following paragraphs address additional design features provided to eliminate the likelihood of run-off.

Hazardous Waste Treatment Unit The concrete floor in Rooms 520 and 528 of the HWTU is provided with a chemical resistant polypropylene coating. The coating covers the entire floor and extends approximately 10 centimeters up on each perimeter wall in each room. The rooms also are provided with floor drains and floor trenches at each entrance. The trenches and floor drains flow into the firewater containment tank located in the basement of the 325 Building. The management of any mixed waste that might accumulate in the tank because of a fire is discussed in Addendum C, Process Information.

Shielded Analytical Laboratory The secondary containment in the SAL is divided into three systems based on three designated areas of the SAL. These areas are the six large, interconnected hot cells, the front face (Room 201), and the back face (Rooms 200, 202, and 203).

The secondary containment system for the six large, interconnected hot cells consists of the stainless steel base of the cell. All waste requiring it is stored in secondary containment consisting of larger containers (e.g. “paint cans” as noted in Addendum C, Section C.1.2.2) and/or pans/trays.

Typically, the use of the secondary containment system is enough to ensure that waste is safely contained. If there were to be a larger scale failure of secondary containment, however, the cell base and trough would collect any spilled waste within the cell. The trough drains by gravity through openings in the bottom of the trough and stainless steel piping to the SAL tank.

Overpack containers and/or spill pallets/drip pans are used as the secondary containment system for the back face of the SAL. The back face of the SAL is used to store mainly solid mixed waste in cans, which are packed in the containers. Any liquids stored here are placed in compatible secondary containment (see Addendum C, Section C.1.4.2). The secondary containment system for the front face of the SAL, which is only used minimally to store mixed waste, consists of the same practice.

Cask Handling Area and Truck Lock The floor is coated with an epoxy paint. Large waste containers that contain bulk liquids are stored inside DOT approved containers providing secondary containment, or managed on spill containment pallets or drip pans. For compatible wastes consolidated into lab-pack containers, the DOT approved outer container serves as secondary containment – such outer containers will be stored directly on the floor. Containers holding waste not subject to containment system requirements pursuant to WAC 173-303-630(7)(c) will be stored on the floor.

3714 Pad The 3714 Pad is made of concrete and is not coated. Unimproved adjacent soil areas may also be used for storage. Waste stored at the 3714 Pad unit must therefore:

- Not contain free liquids.
- Not exhibit the characteristic of ignitability or reactivity.
- Not designate as F020, F021, F022, F023, F026, or F027.

Containers stored outdoors will be kept closed and inspected weekly for signs of damage or potential leakage. These precautions are adequate to prevent contamination from run-off from the 3714 Pad to surrounding areas.

The secondary containment system for each unit is described in detail in Addendum C.

F.2.3 Water Supplies

The 325 Building is designed and operated to contain safely waste and to prevent any contamination of water supplies. The secondary containment systems and operational limits described in Addendum C, prevent releases to the environment and infiltration of waste that could contaminate groundwater. The containment systems also prevent waste run-off that could contaminate surface water. The nearest water supply is the 300 Area water intake located on the Columbia River, which is less than 0.8 kilometers from the 325 HWTUs.

F.2.4 Equipment and Power Failure

The 325 Building is provided with an emergency power system that initiates upon failure of the primary power system, thereby minimizing the likelihood of the release of dangerous waste or mixed waste during a power failure or equipment failure. The 325 HWTUs have emergency lighting systems that operate automatically during power failure incidents. For actions to be taken in the event of power failure to unit systems or equipment, refer to Addendum J, Contingency Plan.

F.2.5 Personal Protection Equipment

Protective clothing and equipment are provided to employees during normal and emergency operations. Protection levels for emergencies are determined either in consultation with an industrial hygienist, or applicable control work permits or applicable operating procedure.

Per the identified work requirements, protective clothing and equipment is available for all staff working at the SAL and the High-Level Radiochemistry Facility (including the Cask Handling Area and the Truck Lock). Protective clothing and equipment available at the SAL and HLRF include, but are not limited to, the following:

Shielded Analytical Laboratory and High-Level Radiochemistry Facility

- Safety glasses (Rooms 201. 603 and 610)
- Chemical protective suits (Rooms 200, 201 and 603) (part of absorbent kits)
- Goggles (Rooms 200, 201 and 603) (part of absorbent kits)
- Gloves (Rooms 200, 201 and 603) (part of absorbent kits).

Storage and treatment of dangerous waste can occur in Room 520, 524, and 528 of the HWTU. Personal protective equipment is required for personnel working these areas of the HWTU. Protective clothing and equipment available at the HWTU include, but are not limited to, the following:

Hazardous Waste Treatment Unit

- Laboratory coats (325 Building – Men's/women's change room)
- Shoe covers (325 Building – Men's/women's change room)
- Surgeon gloves (Rooms 520, 524 and 528)
- Chemical resistant gloves (Rooms 520, 524 and 528)
- Chemical resistant aprons (Rooms 520, 524 and 528)
- Face shields (Rooms 520, 524 and 528)
- Hard hats (Room 528)
- Safety glasses (Rooms 520, 524 and 528)

Protective equipment for the 3714 Pad is taken from the stock in the HWTU and/or HLRF.

The protective equipment storage areas are well stocked at all times. This equipment is replaced periodically as it is used. The above inventory reflects each type of personal protective equipment that typically is present at the 325 HWTUs. Additional personal protective equipment can be obtained, as needed, from storage locations and sources outside of the 325 HWTUs. These areas include the personal protective equipment storage area in the 700 hall men's and women's change rooms, Room 529, and the men's and women's change rooms in the south end (first floor) of the 325 Building. This personal protective equipment also can be obtained from onsite suppliers for the 325 HWTUs.

Respiratory protective equipment (air purifying, full-face/negative pressure respirators) that can be used by personnel is managed by the 325 Building Manager and must be checked out. This equipment is stored within the 325 Building. In addition, the 700 hall men's and women's change rooms normally contain a 1-week supply of coveralls, laboratory coats, hoods, skull caps, cloth shoe covers, rubber shoe covers, and gloves (canvas, surgeon's, and canner's).

F.3 Prevention Of Reaction Of Ignitable, Reactive, and Incompatible Waste

The following sections describe prevention of reaction of ignitable, reactive, and incompatible waste.

F.3.1 Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste

The 325 HWTUs are used to store a variety of ignitable waste. Precautions to prevent ignition of ignitable waste involve separation of waste from sources of ignition and use of procedures to minimize the potential for accidental ignition. There are no routine sources of ignition or open flame in the 325 HWTUs. Work with ignition or heat sources, if required, is limited and controlled in the following ways by management and is performed in compliance with internal requirements for elimination of ignition sources.

- Use of open flame equipment when working with flammable liquids is prohibited.
- Smoking is prohibited around flammable liquids (no smoking is allowed in the 325 Building).
- Electrical equipment used in flammable or explosive atmospheres is required to comply with the National Electrical Code, NFPA 70.
- Use of equipment with automatic, adjustable temperature controls and high temperature limit switches is required to prevent overheating.
- Placement of flammable liquids on hot surfaces is prohibited.
- All static electricity sources require grounding in areas where ignitable vapors might be present.
- Bonding of conductive containers is required when transferring flammable liquids.
- Use of nonsparking tools is required in flammable waste storage areas.

All maintenance or modifications in the 325 HWTUs that require work with ignition sources must receive prior approval by a safety engineer. This approval is documented in the Hanford Facility Operating Record, 325 HWTUs File. Smoking is not allowed in the 325 Building at any time, and the interior and

exterior of the building are clearly posted with 'No Smoking' signs. Waste storage areas are not heated by any radiant heat source. All tools used to open ignitable waste containers are constructed of nonsparking materials.

A fire safety engineer familiar with the Uniform Fire Code inspects ignitable waste storage areas annually. This inspection is documented in the Hanford Facility Operating Record, 325 HWTUs File. There also are storage restrictions at the 325 HWTUs for combustible waste as part of fire safety requirements. The storage restrictions defined in Article 50 of the International Fire Code apply to ignitable and reactive waste storage in the 325 Building.

F.3.2 Precautions for Handling Ignitable or Reactive Waste and Mixing of Incompatible Waste

As described in Section F.3.1, ignitable waste is managed to protect the waste from sources of ignition or open flame. Ignitable waste containers are maintained in good condition and inspected weekly to minimize the potential for releases that could result in fire. Containers of ignitable waste are protected from high temperatures to prevent the potential for pressurization and buildup of ignitable vapors. Containers of ignitable waste are stored in flammable material storage cabinets within waste storage areas (Addendum C). Limitations on sizes of containers and amount of storage in cabinets are discussed in Addendum C.

Small quantities of reactive waste are accepted for storage in the 325 HWTUs. Information on all reactive and other waste accepted by the HWTU and SAL is documented on a waste tracking form, which is reviewed carefully by personnel before accepting the waste. This form contains information on the unique handling requirements of the waste. Any reactive waste requiring special handling and storage to prevent unwanted reactions is appropriately packaged before arriving at the 325 HWTUs. This packaging safeguards against reactions resulting from air or water contact, shock, and other causes. Reactive waste is handled and stored in a manner commensurate with the specific reaction hazards posed by the waste. This includes segregating the waste from other waste and reagent chemicals with which the waste potentially could react.

Because a wide variety of waste can be accepted at the 325 HWTUs, the potential exists for storage of incompatible waste. Mixing of incompatible waste is prevented through waste segregation and storage procedures. Chemical waste stored in the 325 HWTUs is separated by compatibility and hazard class and stored in separate storage areas. Separate storage shelves and cabinets are used within the storage areas (Addendum C) to provide further waste segregation. Before accepting waste from generating units, waste management staff determines the DOT hazard class for each waste (see Addendum B) so that waste can be stored with compatible materials. The following general guidance is used to segregate and separate chemicals:

- Store acids on a low storage shelf or in acid storage cabinets
- Separate acids from bases and alkaline metals such as potassium or sodium
- Separate oxidizing acids from organic acids and flammable or combustible materials
- Store bases away from acids and store solutions of inorganic hydroxides in polyethylene containers
- Store oxidizers away from flammable or combustible materials and reducing agents such as zinc, alkaline metals, and formic acid
- Store peroxide forming chemicals in air-tight containers in a dark, cool, and dry place (inside of cabinets)
- Store flammable materials in approved containers or cabinets
- Separate flammable materials from oxidizing acids and oxidizers and keep them away from sources of ignition
- Clearly, mark cabinets to identify the hazards associated with their contents

The potential for waste ignition or reaction at the 325 HWTUs also is minimized through storage restrictions on hazardous materials quantities. The storage restrictions defined in the International Fire Code, Article 50 for Class B Occupancy apply to ignitable and reactive waste storage in the 325 HWTUs. The weekly inspection of the 325 HWTUs includes checking to see if waste inventories are below these limits. These inspections are documented in the Hanford Facility Operating Record, 325 HWTUs File.

In the unlikely event the fire sprinkler system in Rooms 520, 524, and 528 is activated, the resulting run-off will be contained in the firewater collection tank located in the basement of the 325 Building. This tank is described in detail in Addendum C.

F.3.3 Management of Incompatible Waste in Tank Systems

Waste discharged to the SAL tank from the hot cells typically consists of the same type of waste managed in the hot cells. Sampling and analysis would be used if sufficient process knowledge were not available to characterize the waste for waste acceptance criteria purposes. The waste is treated in the SAL tank, if necessary.

F.3.4 Management of Incompatible Waste in Containers or Tanks

Incompatible waste and other materials are handled as described in Section F.3.2 and in accordance with established operating methods. Storage restrictions that ensure proper separation of containers of incompatible material in the 325 HWTUs are described in Section F.3.2.

Ignitable or reactive waste is not placed in the tank systems unless the waste has been treated, rendered, or mixed so that the waste no longer meets the definition of ignitable or reactive waste under WAC 173-303-090 (Addendum B).

Drawings of the 325 HWTUs are available to ensure that ignitable and/or reactive waste is located at least 15 meters from the unit's property line.

ADDENDUM G
PERSONNEL TRAINING

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ADDENDUM G
PERSONNEL TRAINING

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G. PERSONNEL TRAINING

This Addendum discusses personnel training requirements based on WAC 173-303 and the Hanford Facility RCRA Permit, WA7 89000 8967 (Permit). In accordance with WAC 173-303-806(4)(a)(xii), the *Hanford Facility Dangerous Waste Part B Permit Application* must contain two items: (1) *an outline of both the introductory and continuing training programs by owners or operators to prepare persons to operate or maintain the TSD facility in a safe manner as required to demonstrate compliance with WAC 173-303-330* and (2) *a brief description of how training will be designed to meet actual job tasks in accordance with the requirements in WAC 173-303-330(1)(d).* Permit Condition II.C (Personnel Training) contains training requirements applicable to Hanford Facility personnel and non-Facility personnel.

This Addendum provides the information necessary to comply with training requirements at the 325 Hazardous Waste Treatment Units (HWTUs).

G.1 Outline of Introductory and Continuing Training Programs

The introductory and continuing training programs are designed to prepare personnel to manage and maintain the TSD unit in a safe, effective, and environmentally sound manner. In addition to preparing personnel to manage and maintain TSD units under normal conditions, the training programs ensure that personnel are prepared to respond in a prompt and effective manner should abnormal or emergency conditions occur. Emergency response training is consistent with the description of actions contained in Addendum J, Contingency Plan. The introductory and continuing training programs contain the following objectives:

- Teach 325 HWTUs personnel to perform their duties in a way that ensures the 325 HWTUs's compliance with WAC 173-303.
- Teach 325 HWTUs personnel dangerous waste management procedures (including implementation of the contingency plan) relevant to the job titles/positions in which they are employed.
- Ensure 325 HWTUs personnel can respond effectively to emergencies.

Introductory training includes general 325 HWTUs training and TSD unit-specific training. General 325 HWTUs training is described below, and is provided in accordance with Permit Condition II.C.2. TSD unit-specific training is provided to 325 HWTUs personnel allowing those personnel to work unescorted, and in some cases is required for escorted access. 325 HWTUs personnel cannot perform a task for which they are not properly trained, except to gain required experience while under the direct supervision of a supervisor or coworker who is properly trained. 325 HWTUs personnel must be trained within 6 months after their employment at or assignment to the 325 HWTUs, or to a new job title/position at the 325 HWTUs, whichever is later.

General Hanford Facility training

Permit Condition II.C.2 requires Hanford Facility personnel to receive general facility training within 6 months of hire. This training provides an orientation on dangerous waste management activities being conducted on the 325 HWTUs and includes the following:

- Description of emergency signals and appropriate personnel response
- Identification of contacts for information regarding dangerous waste management activities
- Introduction to waste minimization concepts
- Identification of contact(s) for emergencies involving dangerous waste
- Familiarization with the applicable portions of the *Hanford Emergency Management Plan (*Permit Attachment 4).

PNNL will provide training to all new staff that meets the requirements listed for Permit Condition II.C.2.

Permit Condition II.C.4, requires the Permittees to provide the necessary training to non-Facility personnel (i.e., visitors, subcontractors) as appropriate for the locations and activities undertaken. At a minimum, this training describes dangerous waste management hazards on the Hanford Facility. PNNL will provide this training to non-Facility personnel accessing PNNL-occupied Hanford facilities.

Contingency Plan Training

325 HWTUs personnel receive training on applicable portions of Permit Attachment 4, *Hanford Emergency Management Plan* (DOE/RL-94-02) in the general 325 HWTUs training. In addition, 325 HWTUs personnel receive training on the content of the description of actions contained in Addendum J, Contingency Plan to be able to effectively respond to emergencies.

Emergency Coordinator Training

325 HWTUs personnel who perform emergency coordinator duties in WAC 173-303-360 (e.g., Building Emergency Director) in the Hanford Incident Command System receive training on implementation of the contingency plan and fulfilling the position within the Hanford Incident Command System. These 325 HWTUs personnel must also become thoroughly familiar with applicable contingency plan documentation, operations, activities, location, and properties of all waste handled, location of all records, and the unit/building layout.

Operations Training

Dangerous waste management operations training (e.g., waste designation training, shippers training) will be determined on a unit-by-unit basis and shall consider the type of waste management unit (e.g., container management unit) and the type of activities performed at the waste management unit (e.g., sampling). For example, training provided for management of dangerous waste in containers will be different than the training provided for management of dangerous waste in a tank system. Common training required for compliance within similar waste management units can be provided in general training and supplemented at the TSD unit. Training provided for TSD unit-specific operations will be identified in the training plan documentation based on (1) whether a general training course exists, (2) the training needs to verify waste management unit compliance withWAC 173-303, and (3) training commitments agreed to with Ecology.

G.1.1 Continuing Training

Continuing training meets the requirements for WAC 173-303-330(1)(b) and includes general Hanford Facility training and TSD unit-specific training.

General Hanford Facility Training

Annual refresher training is provided for general 325 HWTUs training. Refer to description in Section G.1.

Contingency Plan Training

Annual refresher training is provided for contingency plan training. Refer to description above in Section G.1.

Emergency Coordinator Training

Annual refresher training is provided for emergency coordinator training. Refer to description above in Section G.1.

Operations Training

Refresher training occurs on many frequencies (i.e., annual, every other year, and every 3 years) for operations training. When justified, some training will not contain a refresher course and will be identified as a one-time only training course. This training plan specifies the frequency for each training course. Refer to description above in Section G.1.

G.2 Description of Training Design

Proper design of a training program verifies that personnel who perform duties on the 325 HWTUs related to WAC 173-303-330(1)(d) are trained to perform their duties in compliance with WAC 173-303. Actual job tasks, referred to as duties, are used to determine training requirements. The first step taken to verify that 325 HWTUs personnel have received the proper training is to determine and document the waste management duties by job title/position. The second step compares waste management duties to the general waste management unit training curriculum. If the general waste management unit training curriculum does not address the waste management duties, the training curriculum is supplemented and/or on-the-job training is provided. The third step summarizes the content of a training course necessary to verify that the training provided to each job title/position addresses associated waste management duties. The last step is to assign training curriculum to 325 HWTUs personnel based on the previous evaluation. The training plan documentation contains this process.

Waste management duties include those specified in Section G.1 as well as those contained in WAC 173-303-330(1)(d). Training elements of WAC 173-303-330(1)(d) applicable to the 325 HWTUs operations include the following:

- Procedures for using, inspecting, repairing, and replacing emergency and monitoring equipment
- Communications or alarm systems
- Response to fires or explosions
- Shutdown of operations

325 HWTUs personnel who perform these duties receive training pertaining to their duties. The training plan documentation described in Section G.3 contains specific information regarding the types of training 325 HWTUs personnel receive based on the outline in Section G.1.

G.3 Description of Training Plan

In accordance with Permit Condition II.C.3, the 325 HWTUs chapter of the *Hanford Facility Dangerous Waste Permit* must contain a description of the training plan. The training plan documentation is maintained outside of the *Hanford Facility Dangerous Waste Part B Permit Application* and the Permit. Therefore, changes made to the training plan documentation are not subject to the Permit modification process. However, the training plan documentation is prepared to comply with WAC 173-303-330(2).

Documentation prepared to meet the training plan consists of hard copy and/or electronic media as provided by Permit Condition II.C.1. The training plan documentation consists of one or more documents and/or a training database with all the components identified in the core document.

A description of how training plan documentation meets the three items in WAC 173-303-330(2) is as follows:

1. WAC 173-303-330(2)(a): *The job title, job description, and name of the employee filling each job. The job description must include requisite skills, education, other qualifications, and duties for each position.*

   Description: The specific 325 HWTUs personnel job title/position is correlated to the waste management duties. Waste management duties relating to WAC 173-303 are correlated to training courses to verify that training is properly assigned.

   Only names of 325 HWTUs personnel who carry out job duties relating to TSD unit waste management operations at the 325 HWTUs are maintained. Names are maintained within the training plan documentation. A list of 325 HWTUs personnel assigned to the 325 HWTUs is available upon request.

   Information on requisite skills, education, and other qualifications for job title/positions are addressed by providing a reference where this information is maintained (e.g., human resources). Specific

information concerning job title, requisite skills, education, and other qualifications for personnel is found in the training plan documentation and can be provided upon request.

2. WAC 173-303-330(2)(b): *A written description of the type and amount of both introductory and continuing training required for each position.*

   Description: In addition to the outline provided in Section G.1, training courses developed to comply with the introductory and continuing training programs are identified and described in the training plan documentation. The type and amount of introductory and continuing training is specified in the training plan documentation as shown in Table G.1.

3. WAC 173-303-330(2)(c): *Records documenting that personnel have received and completed the training required by this section. The Department may require, on a case-by-case basis, that training records include employee initials or signature to verify that training was received.*

   Description: As specified in Permit Condition II.C.1, PNNL will maintain documentation in accordance with WAC 173-303-330(2) and (3). Training records may be maintained in hard copy form or by using electronic data storage. At a minimum, training records will consist of course attendance rosters correlating the training received with the personnel who were in attendance. Training records are maintained in accordance with the requirements of the *Privacy Act of 1974*. Training records for personnel are available for inspection purposes through 59 FR 17091, which gives federal, state, and local government officers 'routine use' access to training records where a regulatory program being implemented is applicable to a DOE or contractor program..

Table G.1. 325 HWTUs Training Matrix

Description of Training Course[1]	Training Category[2]	Retrain Frequency[3]	Staff Position		
			Waste Operations Manager	Waste Operations Staff	Hot Cell Operations Staff
Safety and Health Training	GHFT	Annual	X	X	X
Building Emergency Procedure	CPT	Annual	X	X	X
Building Emergency Director Training	ECT	Annual	X[4]	X[4]	X[4]
Advanced Waste Management Training	OT	Annual	X	X	X
Container Management	OT	When Revised[5]	X	X	X
Tank System Management	OT	When Revised[5]	X	X	X

[1]Refer to the 325 HWTUs Training Plan for a complete description of coursework in each training category.

[2]GHFT – General Hanford Facility Training; CPT – Contingency Plan Training; ECT – Emergency Coordinator Training; OT – Operations Training. See Section G.1.1 for description of these categories.

[3] All courses required initially with refreshers administered as noted in this column.

[4] Limited to unit staff assigned these duties.

[5] Reading Assignment: Staff re-read the procedure(s) included in this category whenever they are revised (including minor revisions).

ADDENDUM H
CLOSURE PLAN

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ADDENDUM H
CLOSURE PLAN

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H. CLOSURE PLAN

The 325 HWTUs will be clean closed in accordance with the requirements of WAC 173-303-610. No post closure activities currently are applicable or required because the 325 HWTUs will be clean closed.

Units or portions of units making up the 325 HWTUs Operating Unit Group may be closed pursuant to this Closure Plan individually, or more than one unit may be closed at the same time. [WAC 173-303-610(1)(d)]

H.1 Closure Plan

H.1.1 Closure Performance Standard

The 325 HWTUs will be closed in a manner that:

- Minimizes the need for further maintenance.
- Controls, minimizes, or eliminates to the extent necessary to protect human health and the environment, post closure escape of dangerous waste, dangerous waste constituents, leachate, contaminated runoff, or dangerous waste decomposition products to the ground, surface water, ground water, or the atmosphere.
- Returns the land to the appearance and use of surrounding land areas to the degree possible, given the nature of the previous waste management activities. [WAC 173-303-610(2)(a)]

The 325 HWTUs operating record will be reviewed at the time of closure to determine whether there have been releases from the dangerous waste management unit(s) being closed to the soil, groundwater, surface water, or air. A physical walkdown of the unit(s) being closed will also be performed. If there is any evidence of spills or leaks from the unit(s) into the environment, removal of contamination will be integrated with the final disposition of the 325 Building and underlying soil contamination, as described in the 300-FF-2 final Record of Decision and the approved Remedial Action Work Plan. [WAC 173-303-610(1)(e), WAC 173-303-610(3)(a)(ix)]

Clean closure decontamination standards for structures, equipment, bases, liners, etc., are those specified for hazardous debris in 40 CFR 268.45, Table 1 per Ecology clean closure guidance (Ecology 1994). [WAC 173-303-610(2)(b)(ii)] The 'clean debris surface' is the performance standard for metal and concrete surfaces.

Attainment of a 'clean debris surface' will be verified by a visual inspection in accordance with the standard that states:

> *A clean debris surface means the surface, when viewed without magnification, shall be free of all visible contaminated soil and hazardous waste except residual staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations and soil and waste in cracks, crevices, and pits may be present provided that such staining and waste and soil in cracks, crevices and pits shall be limited to no more than 5 percent of each square inch of surface area. (40 CFR 268.45, Table 1)*

H.1.2 Closure Activities

Closure activities will remove dangerous waste from each unit being closed, and relocate for continued use, decontaminate, or dispose associated structures and equipment. [WAC 173-303-610(3)(a)(i)]

Partial closure could involve closing a portion of a unitor an entire unit. Except for the timing of the closure activities, partial closure activities would conducted in the same way as those described in this closure plan for closure of the entire 325 HWTUs OUG, i.e. final closure. [WAC 173-303-610(3)(a)(ii)]

The hot cells are connected to the SAL tank by means of the drains in the trough in the front of the hot cells. The only way to introduce waste into the SAL tank is via the hot cell drains. Similarly, the only way to retrieve waste from the SAL tank is to pump it into containers in Cell 6 (northernmost cell in the hot cell gallery) for storage and/or treatment. Decontamination in conjunction with closure is expected to

introduce liquid waste into the SAL tank from the hot cells, and rinsate from the SAL tank closure will need to be treated and containerized in the hot cell. As a result, the SAL tank cannot begin closure until storage and treatment in the hot cells is concluded. Similarly, the hot cells cannot begin closure until the SAL tank is ready to close. Due to this mutual dependency, storage and treatment in the hot cells and in the SAL tank will begin closure only when the last of these two units begin closure. [WAC 173-303-610(3)(a)(i); WAC 173-303-610(4)(a)(i); WAC 173-303-610(4)(b)(i)]

H.1.3 Maximum Extent of Operation

The physical boundaries of the 325 HWTUs' individual units are shown in Addendum A.

H.2 Closure of Container Storage and Treatment Areas (Non-Hot Cell)

H.2.1 Removing Dangerous Waste

Inventory removal procedures from the container storage/treatment unit(s) being closed will be identical to the waste handling, treating, packaging, and manifesting activities given in Addendum B and C of this permit.

During closure, wastes will simply be relocated to other, unclosed portions of the 325 HWTUs (in the case of partial closure) or transferred to other Hanford Permit operating units for subsequent management. Offsite treatment and/or storage facilities may be used if appropriate.

H.2.2 Decontaminating Structures, Equipment, and Soil

At the time of partial or final closure of the unit(s) being closed, equipment and structures in the unit(s) being closed will either be removed and disposed of, or be decontaminated. Equipment and structures that exhibit a 'clean debris surface' before starting closure activities will be considered decontaminated and receive no further decontamination.

Decontamination methods for equipment and structures will be selected from appropriate technologies (40 CFR 268.45, Table 1) such as water washing and spraying, high-pressure water jet scarifiers, abrasive blasting, aquablasting, or mechanical concrete scrubbers and scarifiers. Such technologies will be used until a clean debris surface is obtained or the effort to decontaminate is abandoned (i.e. the equipment or structure is removed for disposal.)

All equipment used for decontamination will be decontaminated or disposed of before closure is complete. All cleaning and decontamination waste will be collected and analyzed as described in Section H.2.4. Any disposable equipment will be placed in a container and properly disposed.

If review of the operating record determines that releases to the firewater containment tank have not occurred during the operating life of the 325 HWTUs, the internal surface of the firewater containment tank will be visually inspected. If a 'clean debris surface' is present at the beginning of the closure process, the firewater containment tank will be considered clean closed. If the surface of the liner does not meet the 'clean debris surface' standard, the tank liner will be removed and disposed. If the underlying tank surface does not meet the clean debris surface standard, it will be decontaminated in accordance with this section or disposed.

H.2.3 Management of Decontamination Waste from Closing Container Units (Non-Hot Cell)

Decontamination waste from closing container storage and treatment units will be placed in containers and sampled to determine disposal requirements. Samples from each container will be analyzed as set forth in Table H.1. Decontamination waste will be managed at a permitted TSD unit or treated and disposed onsite.

H.2.4 Inspection to Identify Extent of Decontamination/Removal and to Verify Achievement of Closure Standard

Attainment of a 'clean debris surface' will be verified by a visual inspection in accordance with the standard that states: A clean debris surface means the surface, when viewed without magnification, shall be free of all visible contaminated soil and hazardous waste except residual staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations and soil and waste in cracks, crevices, and pits may be present provided that such staining and waste and soil in cracks, crevices and pits shall be limited to no more than 5 percent of each square inch of surface area. (40 CFR 268.45, Table 1).

Areas of degraded surface material, such as significant concrete cracking or heavily gouged steel, will be evaluated by non-destructive or destructive means to determine depth of significant surface defects, amount of contamination present in the defects, and to determine if environmental contamination has resulted from the material defect.

H.3 Closure of the Shielded Analytical Laboratory Hot Cells and Tank

The activities required for the closure of the SAL hot cells and tank system are described in the following sections. As noted in Section H.1.2, these units will be closed at the same time as their operations are mutually interdependent.

H.3.1 Removing Dangerous Waste

Closure or partial closure activities will be initiated by removal of the dangerous waste inventory present in the hot cells and tank at the time of closure or partial closure. Inventory removal procedures will be performed in accordance with the waste handling, treating, packaging, and manifesting requirements of Addenda B and C of this Permit.

During closure, wastes will simply be relocated to other, unclosed portions of the 325 HWTUs (in the case of partial closure) or transferred to other Hanford Permit operating units for subsequent management. Offsite treatment and/or storage facilities may be used if appropriate.

H.3.2 Decontaminating Equipment, Structures, and Soils

At the time of hot cell and tank closure, all equipment and structures in dangerous waste storage and treatment areas will be either removed and disposed of, or decontaminated in accordance with this section. Equipment and structures that exhibit a 'clean debris surface' before starting closure activities will be considered decontaminated and receive no further decontamination.

Decontamination methods for equipment and structures will be selected from appropriate technologies found in 40 CFR 268.45, Table 1, such as water washing and spraying, high-pressure water jet scarifiers, abrasive blasting, aquablasting, or mechanical concrete scrubbers and scarifiers. Other methods not included in 40 CFR 268.45, Table 1 may be utilized to address non-RCRA contaminants, but cannot be used alone to achieve a clean debris surface. These methods will be used until a clean debris surface is obtained, or the effort to decontaminate is abandoned (i.e. the equipment or structure is removed for disposal.)

All equipment used for decontamination will be decontaminated or disposed of before closure is complete. All cleaning and decontamination waste will be collected and managed as described in Section H.3.5. Any disposable equipment will be containerized and disposed of based on the status of the waste as dangerous, nondangerous, or mixed waste.

No contaminated soil is expected to be removed in conjunction with the closure of the hot cells and SAL tank units at the 325 HWTUs OUG due to the construction of the building and the scope of operations. If it is necessary to remove soil, the closure plan will be amended to include necessary details such as soil removal, sampling to verify adequacy of removal, and subsequent management of the removed soil. Soil removal may also be deferred to the 300-FF-2 cleanup in accordance with H.1.1.2.

H.3.3 Decontamination of Hot Cell Trough

The collection trough in the interconnected SAL hot cells will be decontaminated using an appropriate decontamination technique (40 CFR 268.45, Table 1) until a clean debris surface is obtained. Any wastewater collected in each sump from the cleaning process will be collected in the SAL waste tank system and managed as dangerous waste.

H.3.4 Decontamination of the Shielded Analytical Laboratory Tank System

At closure, the SAL tank and ancillary equipment, tank secondary containment pan, and associated tank piping will be decontaminated using water washing and spraying (40 CFR 268.45, Table 1). This may be followed by other appropriate techniques if necessary to obtain a clean debris surface. Run-off of decontamination solutions and wastewater will be prevented either by performing cleaning activities within existing containment structures or within portable containment pans or by surrounding the decontamination area with plastic and absorbent pads.

H.3.5 Management of Decontamination Waste from SAL

Decontamination liquid from the SAL hot cells will be accumulated in cell or in the tank and sent to a permitted facility. All nonliquid waste generated during decontamination operations and the equipment used (e.g., sandblast grit, personnel protective equipment and clothing, disposable equipment) will be collected in containers and stored onsite. Samples of the waste could be collected and analyzed as described in Section H.2.4.

H.3.6 Inspection to Identify Extent of Decontamination/Removal and to Verify Achievement of Closure Standard

Attainment of a 'clean debris surface' will be verified by a visual inspection in accordance with the standard that states: *A clean debris surface means the surface, when viewed without magnification, shall be free of all visible contaminated soil and hazardous waste except residual staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations and soil and waste in cracks, crevices, and pits may be present provided that such staining and waste and soil in cracks, crevices and pits shall be limited to no more than 5 percent of each square inch of surface area. (40 CFR 268.45, Table 1).*

Areas of degraded surface material, such as significant concrete cracking or heavily gouged steel, will be evaluated by non-destructive or destructive means to determine depth of significant surface defects, amount of contamination present in the defects, and to determine if environmental contamination has resulted from the material defect.

The SAL tank and ancillary waste piping will be evaluated for meeting the clean debris standard by use of fiber-optic cameras or other nondestructive examination techniques.

H.4 Maximum Waste Inventory

The 325 HWTUs are used to store and treat a variety of different research-and-operations-related dangerous waste. The maximum inventory of waste that could be present at any one time in the 325 HWTUs DWMUs is given in the following table.

Activity	HWTU	SAL Containers	SAL Tank	Cask Handling Area	Truck Lock	3714 Pad
Storage (liters)	9000	3000	1218	10370	10370	17620
Treatment (liters/day)	946	568	1218	10370	10370	17620

H.5 Schedule for Closure

Completion of closure activities for units at the 325 HWTUs OUG is expected to take up to two years from the date of receipt of the final volume of waste at the units. This extended time for closure is necessary due to ALARA concerns present in the facility, particularly the six interconnected hot cells. Closure activities are summarized in Table 11.2, and a detailed schedule of closure activities is provided in Table 11.3.

H.6 Extension for Closure Time

H.6.1 Extension for Inventory Removal

An extension of the time for removal of the inventory of dangerous waste from container treatment/storage unit(s) being closed designated for closure is requested for the 325 HWTUs. Acquiring disposal approvals and arranging shipping to receiving facilities for mixed waste requires longer than the 90 days anticipated under WAC 173-303-610(4)(a). The expected time needed to remove all waste from container treatment/storage units being closed is 180 days. For waste in the tank and hot cells, the expected time to complete inventory removal is two years.

The extended period for removal of the inventory of dangerous waste is needed to accomplish the procedures that are needed to safely work with the ALARA concerns that are present. All activities required to remove the inventory of dangerous waste will be conducted in accordance with applicable Permit conditions and all safety systems will continue to be operated. The removal of the inventory of dangerous waste will be conducted following procedures that are designed to be protective of the workers and the environment.

H.6.2 Extension for Closure Period

An extension of the closure time is requested for the 325 HWTUs units being closed. The ALARA concerns that are present necessitate this extension. The expected time needed to close the units is two years.

The extended closure period exceeding the 180 days given in WAC 173-303-610(4)(a) is needed to accomplish the procedures that are needed to safely work with ALARA concerns that are present in the SAL. All closure activities will be conducted in accordance with applicable Permit conditions and all safety systems will continue to be operated. Closure activities will be conducted following procedures that are designed to be protective of the workers and the environment. [WAC 173-303-610(4)(b)(i)]

H.7 Closure Cost Estimate

An annual report outlining updated projections of anticipated closure costs for the Hanford Facility TSD units having final status is not required per Permit Condition II.H.

Table H.1. Analysis Parameters for Closure of the 325 Hazardous Waste Treatment Units

Parameter and EPA SW-846[a] Analytical Method	Decontamination Waste Water Samples	Soil Samples (if determined to be contaminated)
pH for corrosivity (Method 9040 or 9045)	X	
Ignitability (Method 1010 or 1020)	X	
TCLP (Extraction Method 1311) • Metals (Method 6000 and/or 7000 series) • Volatile organics (Method 8240) • Semivolatile organics (Method 8270) • Chlorinated pesticides (Method 8080)	X	
Total metals: antimony, arsenic, beryllium, boron, cadmium, chromium, lead, mercury, nickel, selenium, silver, and thallium (Method 6000 and/or 7000 series)		X
Volatile organics (Method 8240)		X
Semivolatile organics (Method 8270)		X

Table H.2. Summary of Closure Activities for the 325 Hazardous Waste Treatment Units

Closure Activity Description	Expected Duration (a)	
	Container Unit(s)	SAL Hot Cells/Tank
Receive final volume of dangerous waste	N/A	N/A
Notify Ecology that closure activities will commence (at least 45 days before final closure activities begin)	N/A	N/A
Remove waste inventory and package, manifest, and transport all dangerous waste for treatment, storage, and/or disposal	180 days	780 days
Initial decontamination	120 days	120 days
Remove equipment	270 days	270 days
Records review and visual inspection of structural surfaces, equipment, troughs, and tanks to identify areas of contamination and to determine levels and methods of decontamination required	30 days	30 days
Decontaminate structural surfaces, equipment, troughs, and tanks using methods determined after records review and visual inspection	180 days	180 days
Decontaminate front face and rear face of hot cells		120 days
Reinspect surfaces to verify clean debris standard is met	2 days	2 days
Evaluate best methods for treatment and disposal of waste resulting from decontamination	25 days	25 days
Dispose of waste resulting from decontamination	80 days	80 days
Submit certification of closure to Ecology (within 60 days of completion of final closure activities)	N/A	N/A

(a) Some activities are performed concurrently.

Table H.3. Closure Schedule for the 325 Hazardous Waste Treatment Units

Action	Schedule	
	Container Units	Hot Cells and Tank
Date of receipt of last volume of waste	Day 0	Day 0
Completion of waste inventory removal	Day 180	Day 780
Equipment decontamination or disposal and visual inspection of structural surfaces to identify areas of contamination and to determine level of decontamination needed	Day 530	Day 1210
Structural decontamination	Day 635	Day 1315
HWTU sump and fire water containment tank and SAL hot cells trough and tank decontamination	Day 650	Day 1330
Visual inspection to determine effectiveness of decontamination	Day 690	Day 1370
Further decontamination and visual inspection, if necessary, and disposal of all decontamination waste based on results of waste analyses	Day 720	Day 1400
Clean closure certification	Day 780	Day 1460

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ADDENDUM I
INSPECTION REQUIREMENTS

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ADDENDUM I
INSPECTION REQUIREMENTS

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I. INSPECTION REQUIREMENTS

I.1 Inspection Plan

The purpose and intent of implementing inspection procedures at the 325 HWTUs are to prevent malfunctions, deterioration, operator errors, and/or discharges that might cause or lead to the release of regulated waste to the environment or threats to human health. This Addendum describes the system of daily and weekly inspections involving various PNNL departments and levels of management to meet this intent.

I.1.1 General Inspection Requirements

This section identifies the content and frequency of inspections required at the 325 HWTUs.

I.1.1.1 Daily Inspections

Types of Problems. Specific inspection pointsare:

- Container integrity
- Mislabeled or opened containers
- Improper storage (e.g., incompatible waste storage)
- Disorderliness or uncleanliness of storage unit
- Accumulation of waste in containment systems

Frequency of Inspection: The 325 HWTUs staff performs daily inspections whenever waste packaging, transfer, shipping, or movement operations are conducted. Unit personnel monitor container condition and integrity, the containment system, and other building areas daily where waste is handled.

Results of these daily inspections are documented as part of the 325 HWTUs operating record.

I.1.1.2 Weekly Inspections

The 325 HWTUs personnel conduct weekly inspections of both safety and operating equipment in the 325 HWTUs. Safety and emergency equipment are inspected for functionality and adequacy of supply. The weekly and daily inspections are usually conducted on or before the last working day of each week, and have the same inspection points. Results of these weekly inspections are documented as a part of the 325 HWTUs operating record.

I.1.1.3 Quarterly, Once Every Four Months, and Annual Inspections

The Hanford Facility 300 Area Fire Department performs a once-every-four-months inspection of fire suppressant and notification systems (i.e., sprinkler system and fire alarm pull boxes). This inspection includes flow tests of the sprinklers to ensure that there is no blockage in the system lines; the alarm system is activated to ensure proper pull box operation. Annually, the Fire Department performs a full inspection of the sprinkler system, smoke detectors, heat detectors, and pull boxes. A complete flow test of the sprinkler system is performed from the furthest valve to ensure proper flow through the entire system. Fire extinguishers also are checked for proper pressure and function. The Hanford Fire Department retains these records.

Additional documented inspections are performed quarterly of the emergency eyewash/shower units, the fume hoods, and other ventilation system components. Records of these safety equipment inspections and the results, as well as documentation of any required corrective actions, are maintained by the appropriate facilities and operations staff.

I.1.1.4 Frequency of Inspections

The frequency of inspections is based on specific regulatory requirements and on the rate of possible deterioration of equipment and probability of environmental or human health incidents.

Areas where dangerous and mixed waste are actively handled, including all of the hot cells, the front and back face of the SAL, and Rooms 520, 524 and 528 in the HWTU are considered to be areas subject to spills. These areas are given daily inspections when in use as required by WAC 173-303-320(2)(c).

The primary and secondary containment systems (i.e., floors, troughs, and sumps) are inspected daily when in use for accumulation of spilled material. The containment systems are inspected weekly for structural integrity (i.e., no cracks, gaps, leaks that could result in environmental release of waste in the event of a spill). This frequency is based on the need to perform timely corrective actions in the event that problems are noted.

Aisle space between containers is inspected weekly when applicable. As the objective of the aisle space requirements is to allow for unobstructed movement of personnel and equipment in case of an emergency, the aisle space requirements do not apply to the hot cells, shielded cubicles, or storage cabinets. If quantities of waste are packaged in large containers or drums, temporarily stored before a transfer, a minimum aisle space of 76 centimeters is maintained in accordance with WAC 173-303-340(3), As-Low-As-Reasonably-Achievable (ALARA) concerns, and with applicable standards of the Uniform Building Code and Life Safety Code. Weekly inspections, where applicable, allow container spacing problems to be identified and corrected.

Emergency and safety equipment and personal protective equipment are inspected weekly. Weekly inspections will assure this equipment is available and in adequate supply.

I.1.2 Specific Process Inspection Requirements

The following sections detail the inspections to be performed at the 325 HWTUs.

I.1.2.1 Container Inspection

Dangerous and mixed waste containers stored in the 325 HWTUs are inspected daily where waste handling activities are performed for leakage, evidence of damage or deterioration, proper and legible labeling, and proper lid and bung closure. Any observations made during the inspections, including any repairs or remedial actions taken, are documented in the logbook with the date, time, and printed name and signature of the inspectors. This logbook is maintained in the 325 HWTUs for at least 5 years from the dates of the inspections. All areas subject to spills are inspected daily when in use. Structural integrity of the containment systems is checked weekly.

I.1.2.2 Tank System Inspection

The Shielded Analytical Laboratory (SAL) tank located in Room 32 is used to store mixed waste generated because of waste treatment activities. Routine inspections of the SAL tank system are conducted in accordance with WAC 173-303-640. Inspections involve a combination of visual, mechanical, and electronic means. Due to ALARA considerations, visual inspections of the tank system are conducted by remotely operated cameras mounted in Room 32. These visual inspections are limited to areas of the tank system that can be observed by the camera. In the event of a camera system malfunction, the tank system will be visually inspected from the doorway of Room 32 until the malfunction has been corrected. A mirror is mounted on the back wall of Room 32 to allow viewing the rear of the tank from the window in the door. A logbook or inspection sheet of all inspections is maintained in the operating record for at least 5 years from the date of the inspection.

I.1.2.2.1 Tank System External Corrosion and Releases

Aboveground portions of the SAL tank are inspected each operating day to detect corrosion or releases of waste.

I.1.2.2.2 Tank System Construction Material and Surrounding Area

The SAL tank is double walled and constructed of corrosion resistant stainless steel, with a capacity of 1,218 liters. The outer wall is a cylindrical stainless steel tank that provides containment sufficient to contain 100 percent of the inner tank volume. The construction materials of the tank and the area

immediately surrounding the externally accessible portion of the tank system, including the secondary containment systems, are inspected during use to detect erosion or signs of releases of mixed waste (e.g., wet spots).

Any deteriorations or malfunctions observed during inspection of the tank system will be corrected. Any release to the environment is reported immediately to Ecology, as required by WAC 173-303-640(7)(d)(i), and to the National Response Center as required by 40 CFR 302.

I.1.2.2.3 Tank System Overfilling Control Equipment

The tank controls for the SAL tank include two high-level alarm systems that respond to overfill conditions. The initial tank high-level alarm is activated by a conductivity probe, the second by a capacitance probe. The conductivity probe high-level alarm and associated functions can be tested electrically by depressing a button on the main control panel in Room 201. Activation of this alarm results in a visible red light and audible alarm on the main control panel in Room 201, an alarm condition on the annunciator panel on the second floor of the 325 Building, and closure of electric solenoid valves on all inlet water supply lines to the hot cell area and tank system. Activation of the capacitance probe alarm results in a red light and audible alarm.

I.1.2.2.4 Tank System Monitoring and Leak Detection Equipment

The leak detection conductivity probe for the SAL tank is located between the primary and secondary shells of the double walled tank. The leak detection probe signal activates if any liquids collect in the annulus between the two walls of the tank. The leak detection probe can be functionally tested electrically by depressing a test button on the main control panel in Room 201. A leak detection sensor is also installed in the secondary containment pan underneath the SAL tank and activates if liquids are detected in the pan.

I.1.3 Inspection Log

Copies of the completed inspection checklists are provided to operations personnel and maintained in the 325 HWTUs files. Any corrective actions noted or deterioration or malfunctions in equipment discovered by the inspector are delegated to responsible individuals in the operations group. Corrective actions identified must be completed within 2 weeks unless there is documentation and reason for further delay. Examples of problems that could be identified and the corresponding remedial action are listed in Table I.1. Inspection reports and corrective action response documentation are retained at the 325 HWTUs for a minimum of 5 years.

1 **Table I.1. Remedial Actions for Major Problems**

Major Problems	Remedial Actions
Containment system failures	
Cracks in floor of container storage area	Remove containers from area and cease use until cracks are repaired.
Cracks in floor of SAL cell liner	Remove containers from area and cease use until cracks are repaired, or provide secondary containment for containers holding liquid waste.
Leaking container in container storage area	Transfer waste to another container. Clean up spill.
Leaking tank or ancillary equipment	For minor leaks or drips, conduct inspection of affected equipment every 12 hours. For major leaks, immediately remove all waste from tank system. Prevent addition of waste to tank system until repaired. Notify Building Emergency Director. Initiate contingency plan if appropriate.
Spills	
Minor spills in container storage area	Clean up spill according to contingency plan.
Major spills in container storage areas	Notify Building Emergency Director. Initiate contingency plan if appropriate.

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